

TAMPERE.
FINLAND

TAMPERE

BIODIVERSITY PROGRAMME

2021–2030

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Tampere Biodiversity Programme 2021–2030

Approved by the City Board at its meeting on 20 June 2022

Publications of the Environmental Protection Unit 02/2022 (print), 03/2022 (pdf)

Publisher: City of Tampere

Address: P.O. Box 487, FI-33101 Tampere, Finland, www.tampere.fi

Compilation: Anni Nousiainen, Elina Karimaa, Enni Virtanen

Layout: Booming

ISBN 978-952-371-053-5 (print)

ISBN 978-952-371-054-2 (pdf)

ISSN 2736-8718 (pdf)

ISSN 1798-0127 (print)

Printing: Niini & Co Oy

Cover photo: Visit Tampere/Laura Vanzo

English translation: Lingoneer Oy

TERMINOLOGY

Biodiversity:

Biodiversity (also biological diversity or natural diversity) is the variety and variability of life on Earth. Biodiversity is typically considered at three levels: ecosystem diversity, species diversity and genetic variability within species.

Directive species:

Species listed in Annex II, IV or V of the European Union's Habitats Directive or Annex I of the Birds Directive. The purpose of the Habitats and Birds Directives is to protect certain species and their habitats occurring within the EU, and their annexes list the species covered by the directives and define the species-specific conservation measures required of EU Member States.

Wildlife corridor:

Wildlife corridors (habitat corridors) are pathways of variable width formed by natural areas that allow species to move and spread from one habitat to another. Wildlife corridors are part of an ecological network.

Ecological network:

A network of key natural areas, such as large areas of forest or water, and the wildlife corridors between them, allowing the movement and spreading of species between habitats. Ecological networks are a prerequisite for the preservation of biodiversity.

Ecosystem:

A functional entity consisting of interacting organisms living in an area with relatively homogeneous natural conditions and their inanimate environment. Organisms that are part of the ecosystem form a biocenosis (ecological community). There is no precise definition for the delimitation of ecosystems. For example, a lake can be seen as a single ecosystem or divided into ecosystems operating in different parts of the lake.

Ecosystem service:

Ecosystem services are various tangible and intangible benefits to humans provided by nature, such as climate regulation, soil and groundwater formation, pollination, food and pharmaceuticals as well as recreational opportunities and aesthetic experiences. Ecosystem services can be divided into four categories: supporting, regulating, provisioning and cultural services.

Biological diversity:

See biodiversity.

Restoration:

The restoration of an environment that has been altered as a result of human activity to its natural state or a similar state.

Species under strict protection:

An endangered species that has been specifically designated for protection under Section 47 of the Nature Conservation Act because it is at imminent risk of extinction. The deterioration and destruction of a habitat important for the survival of a species under strict protection is prohibited. The prohibition will take effect when the Centre for Economic Development, Transport and the Environment has set the boundaries of the site and notified the relevant parties of its decision.

Harmful invasive species

See invasive species.

Global Biodiversity Strategy 2011–2020:

A strategic plan for 2011–2020 adopted by the Parties to the UN Convention on Biological Diversity in 2010. The strategy includes 20 biodiversity targets, known as the Aichi targets, which aimed to halt the loss of biodiversity globally by 2020. The new global biodiversity strategy is intended to be completed in 2021.

Nature management:

Management of natural or man-made environments aimed at maintaining or increasing biodiversity or other natural values. For example, nature management includes the eradication of alien species or the management of traditional rural biotopes by mowing and grazing.

Natural diversity:

See biodiversity.

Biodiversity loss:

Biodiversity loss refers to the loss of biodiversity in a limited area or on a global scale. In addition to species extinction, biodiversity loss includes, among other things, habitat loss, reduction in the populations of individual species and reduction in genetic variation within species.

Natural capital:

Natural capital refers to renewable and non-renewable natural resources, ecosystems, biodiversity and other natural assets on which the production of ecosystem services is based. For example, forests are natural capital that provides people with various benefits and services, such as timber, berries, mushrooms and recreational opportunities.

Traditional rural biotope:

Habitats shaped by traditional agriculture that have developed a rich and distinctive selection of species. Areas that have remained open in the past, mainly through grazing and mowing, and endangered species living in them are threatened by overgrowth in particular. Traditional rural biotopes various dry and mesic meadows, heaths, wooded pastures and grazed woodlands.

Resilience:

Ability of an individual or system (e.g. ecosystem or society) to maintain the ability to function under changing conditions and to face problems and crises and recover from them.

Finland's National Biodiversity Strategy:

See Finland's Strategy for the Conservation and Sustainable Use of Biodiversity 2012–2020.

Finland's Strategy for the Conservation and Sustainable Use of Biodiversity 2012–2020

A strategy based on the UN Convention on Biological Diversity, the main objective of which was to halt the loss of biodiversity in Finland by 2020. The strategy is also called the National Biodiversity Strategy.

Invasive species:

An invasive species is a plant, animal or other species introduced outside its natural range intentionally or unintentionally by humans. An invasive species has crossed a natural barrier, such as a continent, sea or mountain range, with the help of humans. Invasive species that threaten biodiversity, cause damage to wildlife or pose a threat to health or safety have been established as harmful invasive species (EU Commission Regulation and national legislation on invasive species).

Abbreviations

City of Tampere:

AKA: City Planning
 ILY: Climate and Environmental Policy
 IOH: Infrastructure Asset Management
 KITIA: Real Estate and Housing
 KITO: Land Property Management
 KT2030: Sustainable Tampere 2030 Programme
 LUKO: Tampere Nature School Korento
 LUMU: Tampere Museum of Natural History
 PT: Geographic Data
 RAKSA: Construction
 RAVA: Building Control Department
 SIPA: Education and Culture Services
 STRAKE: Strategy and Development
 TEKSU: Municipal Engineering Planning
 YTE: Environmental Health
 TIPPA: Tilapalvelut
 VIHU: Green Spaces and Stormwater
 YKA: Master Planning
 YSU: Environmental Protection

Subsidiaries:

Ekok: Ekokumppanit
 Infra: Tampereen Infra Oy

Other:

Six Cities: Finland's six largest cities
 LUKE: Natural Resources Institute Finland
 SYKE: Finnish Environment Institute
 PIR ELY: Pirkanmaa Centre for Economic Development, Transport and the Environment
 TAMK: Tampere University of Applied Sciences
 TUNI: University of Tampere

PREFACE

Biodiversity loss has become a major environmental crisis in addition to climate change. The relationship between climate change and biodiversity loss is twofold – on the one hand, climate change accelerates biodiversity loss, while on the other hand, biodiversity is precisely the resource that enables our living environment to adapt to the changing climate. With the help of the Biodiversity Programme, Tampere aims to respond locally to this great global challenge.

Cities like Tampere have historically risen to where diverse nature has provided people with opportunities for good living – water systems for fishing and drinking water, coniferous forests providing wood for construction and firewood, and arable land. This is the natural capital that cities are now using at an accelerating pace. Therefore, cities have a significant responsibility to halt biodiversity loss. We want to ensure that we and future Tampere residents have the same opportunities and that there will be pure, diverse nature for future generations as well. Indeed, determined improvement of the state of biodiversity is part of the Tampere City Strategy 2030.

The wealth of Tampere has been created by its precious blue and green natural capital: the forests, lakes, ridges and Tammerkoski rapids. Today, Tampere is a densifying city of action that needs room for new construction and growth. How can we also preserve the precious natural capital, our blue and green identity, which produces well-being for the city residents, is the basis of a sustainable urban economy and enables biodiversity to be preserved?

The Biodiversity Programme seeks to find solutions to this challenge. We can find and nurture the values and areas that are most important to be saved, find new operating models for nurturing nature in the city's operations and, on the other hand, find new innovative ways to improve the opportunities for city residents and companies to utilise our natural capital in a sustainable way. In this way, the Biodiversity Programme aims to protect biodiversity in the immediate surroundings of city residents in addition to the nature reserves. At the same time, we create well-being, health and new business opportunities.

Nature affects people in many ways. Seeing and experiencing nature improves the mood, soothes the mind, reduces stress, increases resistance to disease and increases the amount of physical exercise. In a changing climate, green structures that maintain

biodiversity reduce costs caused by climate change and other problems, mitigate heat waves and reduce urban heating.

The challenge therefore holds great potential: nature has many welfare-enhancing effects that can be utilised in promoting wellness tourism, sustainable built environments and human well-being. Technology can also be used to make natural values available to people.

Cherishing natural values is already on the rise in Tampere. The establishment of the Kintulammi hiking area and nature reserve proved to be a great success. 40,000 visits per year are estimated to have generated €3.8 million in economic benefits. Tampere has also developed significant nature expertise in research and development projects. Good examples of these include the experimental urban meadows of the KIEPPI project in Hiedanranta and the nature-based solutions developed in the UNaLab project.

However, making use of these opportunities requires commitment and new forms of cooperation for the benefit of nature. The programme shows that preserving biodiversity is not just an environmental issue; it is part of sustainable urban development – a common issue relating to the attractiveness of the city, the health and well-being of its inhabitants, economic stability and new business opportunities, and it involves many different municipal actors.

The Biodiversity Programme brings together the actions that the city will promote, but it is up to all of us – residents, associations and companies – to nurture our urban nature. Together, we can find new sustainable and innovative ways to enrich the urban environment and make Tampere flourish!



Mikko Nurminen

Mikko Nurminen
Executive Director of Urban Environment and Infrastructure Services



SUMMARY

AIMING FOR A NATURE-RICH AND SUSTAINABLE TAMPERE



What is biodiversity?

Biodiversity is the variety and variability of life on Earth. It includes ecosystem diversity, species diversity and genetic variability within species. Biodiversity is declining at an unprecedented rate in Finland.



Tampere and biodiversity

Biodiversity is vital to humans. The Biodiversity Programme aims to protect biodiversity in the immediate surroundings of city residents in addition to the nature reserves. In a growing city, this requires a wide range of means. These include measures like the restoration of habitats, nature management work, nature conservation and favouring nature-based solutions in planning.






Our shared biodiversity

The implementation of the Biodiversity Programme involves a wide range of municipal actors, and residents, associations, companies and other communities also play an important role in safeguarding biodiversity. The programme implements the city strategy (The City of Action – Tampere City Strategy 2030) and is part of more extensive national and international efforts to halt biodiversity loss.



Economic and health benefits of biodiversity

-  Biodiversity improves the ability of habitats to adapt to climate change and reduces the costs of problems.
-  Contact with diverse nature improves human health and reduces health care costs.
-  Biodiversity is strongly linked to various services provided by ecosystems, such as food and raw material production and recreational opportunities in nature.

Even with a narrow evaluation, the annual value of ecosystem services in the Tampere region is at least €840 million.

GOALS OF THE BIODIVERSITY PROGRAMME

6 main goals and 112 updatable measures



1

Urban nature is diverse and adaptable to climate change

The first goal is to safeguard the biodiversity of Tampere's local nature and the ecosystem services it provides. Biodiversity is protected by taking into account the effects of climate change and the vitality of ecosystems in the city's strategic development, urban planning and construction.



2

Endangered habitat types and species are protected

The second goal of the programme is to protect endangered habitat types and species in the Tampere region by protecting, managing and restoring natural sites and implementing species-specific conservation measures. An additional aim is to develop the consideration of natural values in land use planning.



3

Ecological networks are functional and comprehensive

Comprehensive and functional ecological networks enable the natural spreading of species from one habitat to another and safeguard genetic diversity. The third goal of the programme is to identify and define various ecological networks, safeguard them and further develop them.



4

The state of water systems and small water bodies is good and their biota are diverse and vital

The good chemical and ecological condition of water bodies is a prerequisite for their function as high-quality habitats for water and shore species. The fourth goal of the programme is to increase the level of knowledge about Tampere's aquatic ecosystems and to improve the state of water systems by, for example, carrying out measures in their catchment areas.



5

The control of harmful invasive species is effective and functional

Increased by climate change, invasive species are threatening biodiversity and can also cause health problems and production losses. The fifth goal of the programme is the effective and functional control of harmful invasive species through communications and the development of collection and utilisation measures.



6

Residents and communities are aware of local nature values and want to work to support them

Residents are an important resource for safeguarding biodiversity in the urban environment, but ignorance and indifference can also increase the risk of unfavourable treatment of the immediate surroundings. The sixth goal of the programme is to ensure that city residents and communities know their local nature values and want to work for them.

PART 1.

Background and preparation of the Biodiversity Programme

1 BIODIVERSITY SUSTAINS LIFE

1.1 Diverse nature is the foundation of health and well-being

Biodiversity, i.e. the variety of different ecosystems, species and genes, sustains life on Earth. It is also the foundation of human well-being, since biodiversity strengthens various biological structures and processes that produce ecosystem services important to humans. Ecosystem services include all the tangible and intangible benefits to humans provided by nature, such as clean air and water, fertile soil, food, flood management and recreational opportunities.

Some ecosystem services are vital to us and others increase our well-being in the form of economic benefits, for example. Nature and biodiversity can be thought of as capital without which our economy would not work. For example, according to an estimate made in the Tampere region, the annual value of ecosystem services in the region is €840 million, although the survey did not take into account all ecosystem services¹.

Human health is also strongly linked to biodiversity. Biodiversity both directly and indirectly affects all aspects of health, including physical, mental and social well-being.^{2,3} For example, the development and maintenance of the human immune system requires continuous exposure to diverse environmental microbes, such as soil microbes. In the event of insufficient exposure, human resistance to disease deteriorates and, in addition, the regulation mechanisms of the immune system may be impaired, which may lead to the onset of allergic or autoimmune disease. As a result of urbanisation, people's contact with diverse nature has decreased, which is thought partially to explain, for example, the increasing prevalence of allergies, asthma and type 1 diabetes in the population.^{4,5}

Spending time in nature is good for mental health in many ways. Contact with nature relieves stress, relaxes the body, improves the mood and increases personal resources. A small number of green areas in the living environment during childhood and youth has been found to increase the risk of psychological disorders. Accessible local nature also promotes social well-being, sense of community and solidarity by providing a natural environment for social activities and interaction. Studies have shown that diverse green environments contribute more to mental well-being than less diverse environments do.^{3,6}

1.2 Biodiversity is decreasing at an unprecedented rate

The natural diversity that sustains our well-being is under threat. According to an estimate published in 2019 by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), biodiversity is becoming impoverished at an unprecedented and accelerating rate around the world.⁷ This is due to the unsustainable practices of humankind, especially the destruction and degradation of habitats caused by land use and the overconsumption of natural resources, which are exacerbated by population growth. We are living in the sixth wave of extinction, which has been caused by humans.

The situation is alarming in Finland, too. The share of endangered species in the species assessed has grown in each assessment round over the past 20 years (Figure 1). According to the most recent assessment made in 2019, one in nine species is endangered, and the populations of many previously common species have declined dramatically. More than one-third of Finland's birds and moss species and about a quarter of our lichen species are endangered. Approximately one-half of Finland's habitat types are endangered, up to 60% in southern Finland and the Tampere region. Of the endangered and near-threatened species occurring in the Tampere region, 113 have been designated as priority species in the region, since the local occurrences of the species are particularly important for their conservation. These include species such as the endangered false heath fritillary, *Anacamptis fuscella* and Eurasian coot and the vulnerable European white elm.⁸ Some of the most significant reasons for the endangerment in Finland and the Tampere region have been forestry activities, the closure of open spaces and construction on land and in water.

INCREASE IN NUMBER OF ENDANGERED SPECIES IN FINLAND

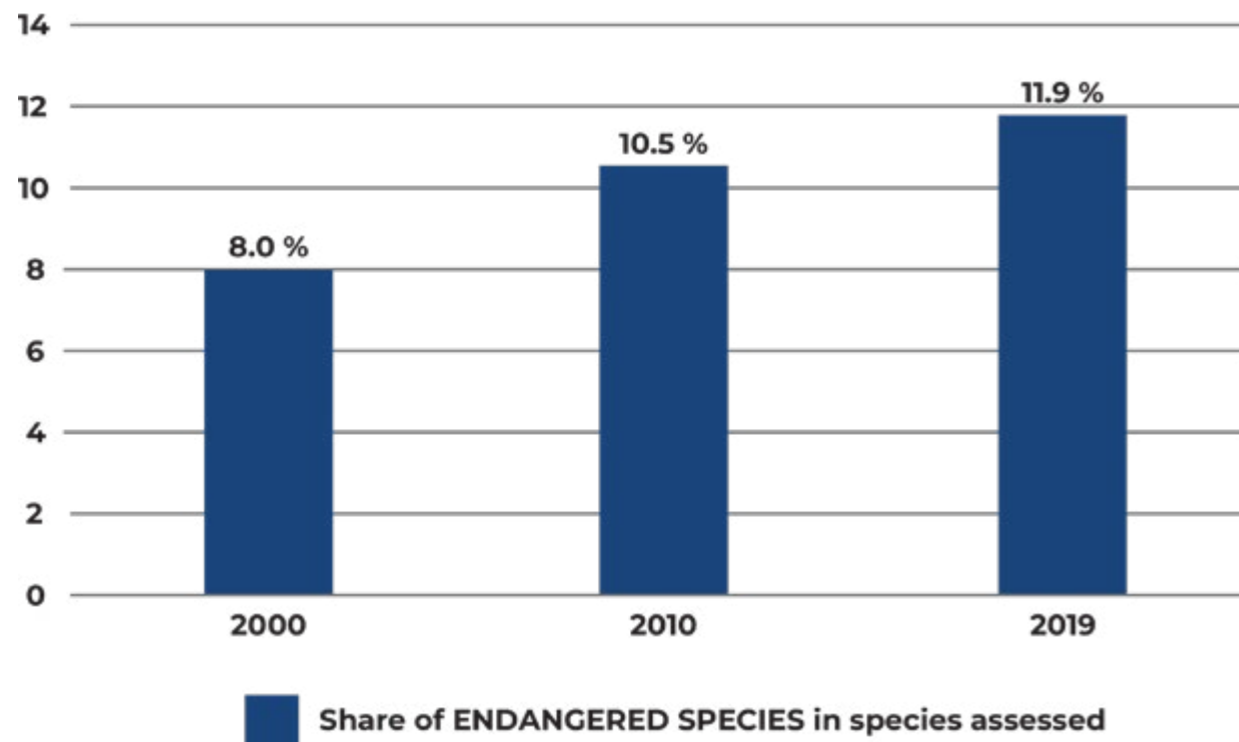


Figure 1. Share of endangered species in all species assessed in Finland in 2000, 2010 and 2019.

The depletion of biodiversity is a serious threat to human health and well-being as well as to the economy and stability of societies. The impoverishment of biodiversity also weakens nature's adaptability and resilience, i.e. its ability to recover from unexpected disturbances. The risk is that ecosystems will undergo sudden and irreversible changes with serious and unforeseeable consequences for both nature and societies.⁷

Biodiversity loss is also linked to another crisis threatening humanity: climate change. Climate change is expected to accelerate biodiversity loss and, on the other hand, biodiversity loss may accelerate climate change if nature's capacity to absorb and store carbon is reduced. Some of the measures to mitigate climate change are also beneficial for biodiversity, but separate measures are also needed to halt biodiversity loss.¹¹ Fundamental changes in all areas of society are needed to overcome both crises.

1.3 Protecting biodiversity is economically viable

Nature and biodiversity form the basis for the economy and the well-being of societies. Although the economic value of ecosystem services cannot yet be fully estimated, it is clear that their degradation will entail huge costs both globally and locally.^{12, 13} Globally, the economic losses caused by biodiversity loss are estimated to amount to as much as €14 trillion annually by 2050 if the current trend continues.¹⁴ Protecting biodiversity, on the other hand, will produce a wide range of economic benefits and savings. The costs of climate change and other problems will also be reduced, since biodiversity reduces nature's vulnerability to destruction and extreme conditions. For example, heat waves and temperatures in cities are strongly influenced by biodiversity and urban greenery. Abundant vegetation reduces the temperature by increasing evaporation, shading and reducing the uptake of sunlight. High temperatures increase health problems and also the costs of health care: in Finland, for example, the mortality rate rises sharply when the temperature exceeds 24 degrees. In addition, high temperatures strongly increase the cost of energy consumption to cool the city. The

preservation of biodiversity is a prerequisite for our natural environment to be able to adapt to the changes in environmental conditions brought about by climate change, and therefore the protection of biodiversity also promotes the preservation of economic stability and management of risks as climate change progresses. Many of the ecosystem services that are vital to cities depend on biodiversity. The monetary value of these ecosystem services (e.g. flood management, air quality, recreational use) may be challenging to measure, but the economic impact will be enormous if they deteriorate.

Diverse, vibrant nature is also a factor in the city's attractiveness and vitality. Nurturing and restoring diverse nature can bring economic benefits to the city through nature tourism, but also as recreational opportunities and well-being for the city residents. For example, the calculated value of the health and well-being impacts of the Kintulammi nature reserve is estimated to be €3.8 million per year.¹⁵ The health benefits provided by nature reduce the costs of health care.¹⁶

Restoration of nature is also often economically viable. For example, the international TEEB (The Economics of Ecosystems and Biodiversity) project estimates that, for every dollar invested in restoration, between \$3 and \$75 will be returned in the form of ecosystem services.¹⁷ However, restoration is often slow, technically challenging and expensive, so the prevention of biodiversity loss will be significantly more advantageous to societies than repairing the damage afterwards.^{13, 17} Restoration is not always even possible – no restoration measures can bring back species that have become extinct. However, as a large part of the world's ecosystems have already deteriorated, restoration must be included in the range of measures to preserve biodiversity as cities become denser and grow.

Restoration and the preservation and enrichment of biodiversity can also be seen as an economic investment, since it is an investment in natural capital that comes back to society as well-being in the form of ecosystem services. In the future, nature restoration and enrichment projects can also bring benefits in the form of carbon and ecological compensations as legislation and the markets develop.

1.4 The benefits of biodiversity must be recognised in decision-making

Measuring the monetary value of nature and ecosystem services is challenging but very important for better taking into account the benefits of nature – and the disadvantages of biodiversity loss – in decision-making. The fact that the economic significance of biodiversity and ecosystem services is not sufficiently recognised in decision-making is one of the most significant factors behind biodiversity loss on the global scale.¹²

Research data on the positive effects of biodiversity can be integrated into decision-making, so that the benefits of biodiversity can be harnessed in the best possible way. By nurturing and enriching nature, we can simultaneously improve the well-being of natural environments, secure the economy, prepare for climate change and promote human health and well-being now and in the future.

1.5 More needs to be done in public administration to protect biodiversity

Several national and international agreements and strategies have been drawn up to safeguard biodiversity. The most significant of these is the 1993 UN Convention on Biological Diversity, to which Finland is committed among 196 parties. In addition, the UN Sustainable Development Goals (SDGs), the EU Biodiversity Strategy 2011–2020 and Finland's National Biodiversity Strategy 2012–2020 are among the efforts to halt biodiversity loss. In spite of the ambitious goals, the measures to protect biodiversity so far have been insufficient.¹¹

As large landowners and through their zoning monopoly, municipalities have the opportunity – and the moral responsibility – to be important actors in the protection of biodiversity. As public actors, municipalities also have a responsibility for nature and biodiversity based on the constitution and separate legislation, as well as an obligation to ensure a good and sustainable living environment for their inhabitants.¹⁸ In recent years, several municipalities such as Helsinki, Kuopio, Nokia and Pirkkala have drawn up programmes aimed at halting biodiversity loss and enriching nature. The role of biodiversity protection is also growing on the regional level, as the Tampere region will be the first in Finland to draw up a regional biodiversity programme in 2021–2022.

With the help of the Tampere Biodiversity Programme, which is now being launched, Tampere aims to fulfil its obligations to protect biodiversity more comprehensively, aiming to become a city that is more sustainable for nature, more welcoming and healthier

for people. Ambitious measures to halt biodiversity loss are of paramount importance, both in terms of the intrinsic value of nature and in order to safeguard the future of humanity.



Photograph: Visit Tampere/Laura Vanzo

FACT BOX

The growing role of cities

Cities and biodiversity are intertwined in many ways. As urbanisation progresses, the population is increasingly packed into large growth centres and cities, resulting in an increasing need for additional urban construction and densification.

With the expansion of cities and complementary construction, the space left for nature is decreasing, habitats are becoming smaller and the biodiversity of cities is being weakened. As the population of cities grows, the consumption of natural resources is also increasingly concentrated in cities, which means that the negative impact of cities on ecosystems becomes more widespread. Therefore, the impact of cities on biodiversity has increased and will continue to do so, both within and outside cities. Accordingly, urban nature and cities also play an increasing role in the protection of biodiversity.

Ecosystem services keep cities viable

Biodiversity maintains ecosystem services upon which cities are also dependent. In addition to the fact that city residents need natural services mainly produced outside cities, from climate regulation and oxygen production to food and building materials, urban nature also provides ecosystem services that are important in many ways. Natural environments within the built environment help improve air quality, provide shade and recreation and mitigate extreme weather phenomena, such as heat waves and floods caused by heavy rains, which are increasing as a result of climate change.¹⁶

In cities, species abundance may be higher than in surrounding areas due to, for example, exotic garden and park plants. However, the number of species alone is not decisive for the functioning of ecosystems and for ecosystem services. In addition to the number of species, it is also essential to talk about functional diversity, i.e. the kinds of functions offered by different parts of ecosystems. Biodiversity loss impairs the ability of ecosystems to provide humans with useful services, which may have significant consequences for the economy of cities and the well-being of residents.

Rich urban nature promotes physical and mental health

Contact with diverse nature promotes human health in many ways. For example, the human immune system has been shown to benefit from exposure to diverse environmental microbiota. Enriching urban nature and increasing exposure to nature can improve city residents' resistance to disease and prevent the onset of allergic and autoimmune diseases.

Urban greenery and green areas are important for the mental health and social well-being of city residents. Among other things, green areas relieve stress, promote recovery and provide a natural environment for relaxation and spending time alone as well as social encounters. Green areas also encourage physical activity, which promotes both mental and physical health.^{2,3}

In addition to the number and accessibility of green areas, their quality is also important – for example, a study conducted in the UK observed that the positive effects of green areas on mental well-being increased with increasing species abundance.^{2,6}

Biodiversity increases the resilience and financial stability of cities

Cultivating biodiversity provides cities with many kinds of economic benefits and savings. For example, the health benefits of diverse green areas are reflected in savings in health care.¹⁶ The cooling effect of vegetation can bring savings by reducing the need for air conditioning and health problems caused by heat.

The diversity of urban nature increases the resilience of cities, i.e. their ability to tolerate changes and recover after various problems, such as natural disasters.¹² The costs caused by extreme weather phenomena, which are becoming more common as a result of climate change, can be kept in check by increasing the diversity of urban nature. For example, nature-based solutions for stormwater management, such as wetland construction or restoration and favouring green areas instead of impermeable surfaces, will help

2 TAMPERE AND BIODIVERSITY

2.1 Tampere's nature and its specific features

A growing city

Tampere is the third-largest city in Finland with over 241,000 inhabitants. The Tampere region is one of the major Finnish growth centres, where population is expected to become increasingly concentrated. The city's population has been growing for a long time, and the growth is expected to continue in the near future. According to the Tampere City Strategy 2030, the city is aiming for an annual population growth rate of around 1.4 per cent, which would mean that Tampere would have approximately 300,000 inhabitants by 2035. With the growth in population, the pressure for construction in the city's green areas is increasing, and the use of green areas will also increase.

The city covers an area of 689.6 km², of which 525.2 km² is land and 164.4 km² is water. The majority of the area is located on the north side of the inner city, in the region of Aitolahti-Teisko (390 km²). 24.7% of Tampere's land area (129.5 km²) is owned by the city, which also owns around 6.5 km² of land in other municipalities. Most of the land owned by the city is located in the inner-city area.

Forests and peatlands

In addition to the built environment, the landscape of the inner city is dominated by two large lakes, Näsijärvi and Pyhäjärvi, the esker line between them, Tammerkoski rapids connecting the lakes and various small water bodies. The area is also rich in forests. The city owns a total of approximately 7,500 hectares of forests, more than half of which, nearly 4,000 hectares, are located in the inner city. In total, about 38% of the forests in the inner city are owned by the city. The northern part of Tampere, Aitolahti-Teisko, has a rural feel compared to the inner city and a varied scenery of forests, fields, numerous lakes and small water bodies. About 3,000 hectares, or 8%, of the forests in the area are owned by the city. In addition, the City of Tampere owns approximately 500 hectares of forests outside the city borders.

Tampere is located in the southern part of the northern coniferous forest zone, i.e. the southern boreal zone. However, the Tampere region is divided into three different forest vegetation zones (the southern boreal Lounaismaa and Ostrobothnian coast, the southern

boreal Finnish Lakeland and the central boreal Ostrobothnia). Accordingly, the area has features of southern, eastern and northern plant species. Indeed, Tampere is an extreme area in terms of the occurrence of many plant species. The central and southern parts of the city belong to the Southern Tavastia district of herb-rich forests (Pirkkala district of herb-rich forests), so the proportion of herb-rich forests is quite high in Tampere. For example, 14% of the forests owned by the City of Tampere are herb-rich forests, whereas only around 1% of Finland's total forest area consists of herb-rich forests.¹⁹ The rich and multi-layered vegetation in herb-rich forest provides a favourable habitat for many species. In Tampere, the most common type of forest is Myrtillus-type heath forests (42%), followed by herb-rich heath forests (33%).

Old-growth forests, in which the average age of the trees exceeds 80 years, amount to about 30% of city-owned forests and about 18% of all forests in Tampere.²⁰ The average age of the trees is 70 years in city-owned forests and an estimated 41–60 years in the whole of Tampere.²⁰ According to a forest biodiversity analysis carried out in 2018 by the Finnish Environment Institute, 79% of the forests owned by the City of Tampere belong to forest areas that are important for biodiversity and approximately 30% of all forests in Tampere belong to the best category.²¹ In the national analysis, the best 20% of all forests in terms of biodiversity were defined as forests that are important for biodiversity. The assessment also took into account the damage to biodiversity caused by forest management and drainage.

The soil in Tampere, with the exception of the herb-rich areas, is rather barren and low in nutrients. The most common type of soil is moraine, and rocky soils are also common, along with clay and silt in low-lying areas. There are relatively few peatlands and swampy areas and they are small. The most common types of swamps are pine peatlands and bogs and spruce peatlands.

Lakes and small water bodies

Tampere has a total of about 160 lakes, and their ecological state is mainly good or excellent. There are also some very eutrophic lakes – for example, Iidesjärvi, Nuorajärvi and Nuutilanlahti in Velaatta, which are important areas for birds. Valuable waterfowl habitats also include Lake Vähäjärvi in Härmälä. Tampere also has a large number of various small water bodies: streams, intermittent streams, ditches, springs and small ponds. In the inner-city area, most of these have been modified by humans in some way. In the less densely populated Aitolahti-Teisko region, a higher proportion of the small water bodies have remained in their natural state than in the inner city. The water quality and ecological state of small water bodies have

not been surveyed comprehensively, but it is known that their state has deteriorated in many places as a result of human activities. Of the significant free flow channels in the inner-city area, for example, the ecological state of Viinikanoja, Pyhäoja and Vuohenoja has been assessed as poor. Small water bodies are important habitats for many species, including endangered ones. In addition, they form important wildlife corridors in the urban area and facilitate the management of flood waters.

Cultural species and traditional rural biotopes

In Tampere's nature, the long-term cultural impact is visible in areas such as housing, agriculture and the region's industrial and railway history. In addition to a variety of useful and ornamental plants, there are a number of species in Tampere that are spreading unintentionally with humans, benefitting from man-made habitats and becoming more widespread in cultural environments. Seeds of new plant species have been introduced to Tampere especially through rail transport, among products such as grain, fodder and coal. Species from other parts of Finland, Russia and beyond found new habitats in railway yards in particular and also in places like industrial areas, Russian barracks and manor parks. Plants of Russian origin in Tampere include species like hoary alyssum and *Bromus inermis*.²² These are examples of invasive species that are considered to have enriched the local nature without being harmful to native species. By contrast, certain newer species that spread uncontrollably and are harmful to humans or ecosystems, such as lupine, hogweed and Himalayan balsam, have been categorised as harmful invasive species.

Many of our native plant and insect species have also benefited from man-made railway and road embankments and various wasteland areas. One of these is the endangered *Athetis gluteosa*, a moth species under strict protection, whose habitats protected under the Nature Conservation Act are located on railway embankments. In recent decades, however, the living space of these species has been significantly reduced by the increase in asphaltting and other surface materials and the densification of the urban structure.

Of man-made environments, traditional rural biotopes are endangered throughout the country. Traditional rural biotopes are habitats usually rich in species, formed as a result of traditional livestock farming, and their characteristics are the result of, among other things, mowing and grazing. Species dependent on traditional rural biotopes are particularly vulnerable to habitat overgrowth and excessively lush vegetation. Traditional rural biotopes identified in Tampere are mainly located in northern Tampere, almost entirely on privately owned farms. Some of these are valuable both

regionally and nationally. Traditional rural biotopes located on land owned by the City of Tampere are very small in size, but they also contain noteworthy and endangered species typical of the habitat types.

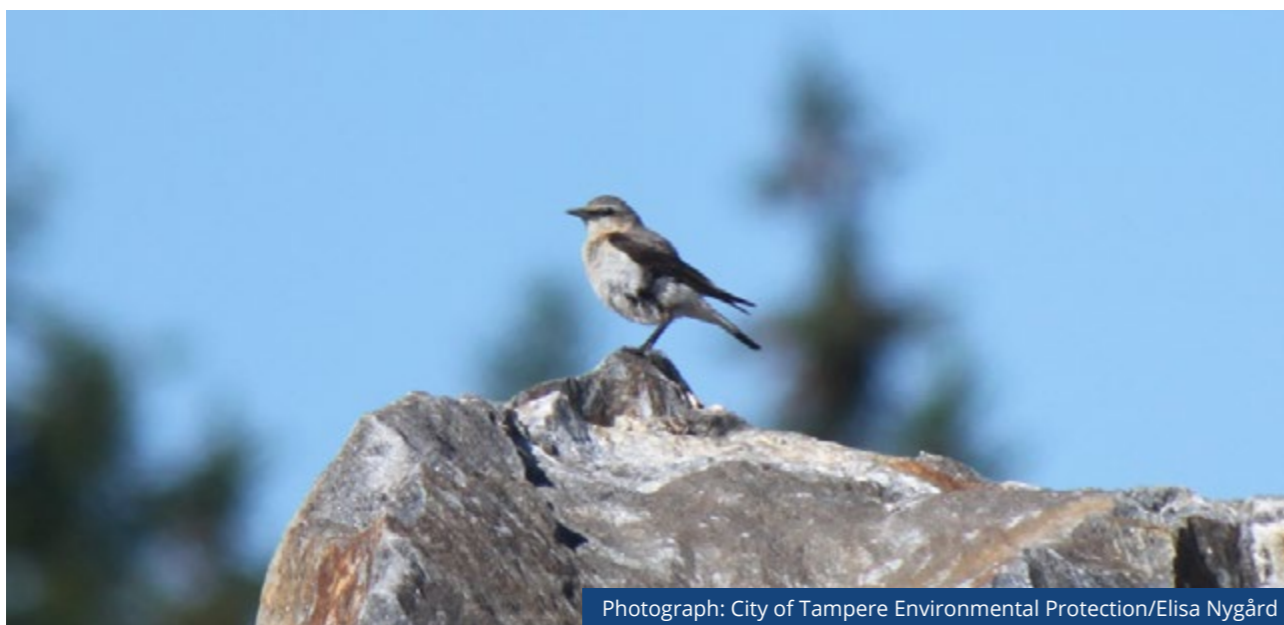
The symbol species selected for Tampere are the white wagtail, which is abundant in the region, the endangered false heath fritillary and violet, which occurs in Tampere in 10 species.

2.2 Nature conservation in Tampere

The City of Tampere's nature conservation work began in 1986, when the municipal environmental protection authority was established and a body responsible for nature conservation was thus also established in the municipality. In 1994, the first publication of valuable natural sites in Tampere was published (Mikola, J., Nieminen, P. & Kosonen, L. 1994: Tampereen arvokkaat luontokohteet), followed by a similar publication about ten years later (Korte, K. & Kosonen, L. 2003: Tampereen arvokkaat luontokohteet 2003). These publications focused on describing and raising awareness of valuable sites. On the background was a large amount of information, especially from associations of nature enthusiasts, whose activities in the Tampere region were and still are quite expert and active. Nature reserves were established on land owned by the City of Tampere, especially on the basis of the proposals and reports of organisations and with the contribution of officials.

Nature reserves

The City of Tampere started systematic nature conservation with the Tampere Nature Conservation Programme 2012–2020. It designated new areas to be protected under the Nature Conservation Act, through zoning and as high conservation value forests. The programme also identified natural sites to be managed and survey needs. The sites were selected in particular on the basis of previous publications, consultation and official work. Municipal bodies also provided guidance on the scope of the programme. The total number of sites was 67, the majority of which were on land owned by the City of Tampere. Of these, 31 were designated for full or partial protection under the Nature Conservation Act. This was a significant addition compared to the former 22 nature reserves, nine of which were owned by the city. The programme was approved at the last session of the City Council in 2012, and its implementation started in 2013. By the end of 2020, the total size of areas protected under the Nature Conservation Act in Tampere had grown to over



Photograph: City of Tampere Environmental Protection/Elisa Nygård

1,200 hectares, having been 417 hectares at the start of the programme. The largest single new area was the Kintulammi nature reserve, which was established in 2018 and covers approximately 550 hectares. Together with Vattula and its extension, it forms a continuous area of approximately 610 hectares.

Tampere's nature reserves and nature conservation programme sites represent forest ecosystems in particular: the majority of forests are spruce-rich, either heath forests rich in dead wood or herb-rich forests with abundant species. The heath forests are mainly herb-rich or Myrtillus-type. There are also a few eutrophic lakes serving as waterfowl habitats, the most significant of which is Lake Iidesjärvi, as well as small peatlands in their natural state. Habitats in Teisko have also been protected under the Nature Conservation Act for one of Tampere's symbol species, the endangered false heath fritillary. Tampere's best-known nature reserve is probably Pyytikki, a significant geological site and beautiful ridge forest located right in the city centre.

Natural monuments

Under the Nature Conservation Act, particularly impressive, rare or otherwise representative natural formations can be protected as natural monuments. These are often trees, groups of trees or glacial erratic boulders. As a result of protection, damaging or destroying the natural monument is prohibited by the Nature Conservation Act. The protection of natural monuments is the responsibility of the municipality, with the exception of state-owned land. In Tampere, the protection of natural monuments is decided upon by the environmental and building department. There are currently 20 natural monuments in Tampere, most of which are trees or groups of trees.

Nature management and restoration

In order to preserve natural values, it is necessary to take active nature management measures for some natural habitats or occurrences of species. These include, in particular, open environments, such as traditional rural biotopes and xerothermic habitats on ridges, whose natural values are undermined by overgrowth, as well as herb-rich forests, where spruce growth can become harmful to the species. In Tampere, nature management has been carried out on false heath fritillary sites, for example, by removing shrubs that have grown in the meadows and by mowing and organising grazing. The aim of the measures is to keep the meadow sufficiently open for the butterfly and its food source, *Valeriana sambucifolia*.

Restoration refers to a situation where an attempt is made to restore the state of an already changed natural site closer to its original state. On peatlands, the aim is to restore the changed water management by, for example, damming ditches and removing trees. Damming is partial restoration in which water is returned to the mire by building dams in drainage ditches. In Tampere, the restoration of peatlands has been started by damming drained peatlands in the Kintulammi nature reserve. Studies on alternative management methods for the peatlands in Kintulammi have been published on the website of the City of Tampere. Damming has been carried out through volunteer efforts by environmental organisations. Sometimes, it is also necessary, for example, to increase the amount of dead wood in forests or to carry out prescribed burning to restore forest habitats for species that depend on fires. Prescribed burning has not yet been tried in Tampere for nature management.

3 PURPOSE AND GOALS OF THE BIODIVERSITY PROGRAMME

The Tampere Biodiversity Programme aims to develop the City of Tampere's ecologically sustainable practices and to safeguard biodiversity, not only in nature reserves but also in the immediate surroundings of city residents in 2021–2030. The programme is the next step in the City of Tampere's long-term work for nature and the environment. In recent years, significant efforts have been made to combat climate change in particular. In line with the City Strategy, Tampere is aiming for carbon neutrality by 2030, and the city's measures to achieve this goal have been compiled into the Carbon Neutral Tampere 2030 Roadmap. The Sustainable Tampere 2030 Guidelines for the city's environmental policy include climate goals as well as objectives relating to sustainable consumption of natural resources, urban nature and the state of the environment, among other things. The Tampere Biodiversity Programme aims to serve as one of the tools for the realisation of these objectives and to put the protection of biodiversity at the heart of the city's environmental work alongside climate measures. The Biodiversity Programme also implements the UN Sustainable Development Goals (SDGs), which the City of Tampere is committed to promoting. In particular, the programme contributes to the achievement of SDGs 6, 11, 13 and 15 (Figure 2).

As the city grows and becomes denser, it is increasingly important to nurture the remaining nature. Through

the Biodiversity Programme, the City of Tampere aims to prevent and mitigate the adverse effects of the city's expansion and complementary construction on nature by, for example, improving the quality of different habitats and developing wildlife corridors.

The programme has also compiled other key policies and strategies of the city that have an impact on biodiversity. During the programming period, the Biodiversity Programme guides the priorities of the City of Tampere's biodiversity-related monitoring and promotion tasks.

The programme is based on six goals decided by the City Board at its meeting on 24 August 2020. The goals are:

1. Urban nature is diverse and adaptable to climate change
2. Endangered habitat types and species are protected
3. Ecological networks are functional and comprehensive
4. The state of water systems and small water bodies is good and their biota are diverse and vibrant
5. The control of harmful invasive species is effective and efficient
6. Residents and communities are aware of local nature values and want to work to support them



Figure 2. The Biodiversity Programme implements the UN Sustainable Development Goals, in particular SDGs 6. Clean water and sanitation, 11. Sustainable cities and communities, 13. Climate action and 15. Life on land.

4 PREPARATION OF THE PROGRAMME

The Tampere Biodiversity Programme was prepared in two phases in 2020–2022. The first phase defined the programme's goals for 2030 and the second phase prepared the measures to reach them. The preparation of the programme was the responsibility of the City of Tampere Environmental Protection Unit. The goals of the programme were prepared in spring and summer 2020 in cooperation with various city units. The City Board approved the goals on 24 August 2020.

The measures of the programme were worked on in the city's internal workshops, which examined how biodiversity was currently being taken into account in the city's various units and developed ideas for new practices. The preparation of the measures was directed by the Environmental Protection Unit and a project team composed of municipal actors. In the preparation of the measures, the primary focus was on the direct impact of the city's activities on biodiversity.

5 HOW THE PROGRAMME IS LINKED TO TAMPERE'S OTHER POLICIES AND OPERATING MODELS

The Tampere Biodiversity Programme was prepared in two phases in 2020–2022. The first phase defined the programme's goals for 2030 and the second phase prepared the measures to reach them. The preparation of the programme was the responsibility of the City of Tampere Environmental Protection Unit. The goals of the programme were prepared in spring and summer 2020 in cooperation with various city units. The City Board approved the goals on 24 August 2020.

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Residents, associations and city employees were also extensively involved in the preparation of the measures: surveys conducted in autumn 2020 surveyed residents' and expert associations' views on Tampere's nature and on the possible measures of the Biodiversity Programme and collected proposals for measures from city employees.

Feedback on the draft programme was collected in autumn 2021, and the feedback received was used in the further preparation of the programme.

The process of preparing the programme is described in more detail in [Appendix 1](#).

The Biodiversity Programme website at www.tampere.fi/tampereenlumo provides separate reports on the results of resident, association and employee surveys and a report on the feedback received on the draft programme.

The City of Tampere has several interlinked policies, programmes and operating models that guide the promotion of biodiversity in the city organisation. The most important factor guiding the city's operations is the City Strategy. The consideration of biodiversity and other environmental work of the city are particularly guided by the environmental policy guidelines based on the City Strategy, the Sustainable Tampere 2030 Guidelines. In addition, the city's own policies and practices are substantially influenced by various international agreements and strategies, laws and regulations as well as cooperation with the city's residents and communities.

[Figure 3](#) shows a diagram of the city's policies, programmes and activities relating to the promotion of biodiversity as well as their underlying factors. The following pages describe in more detail the most important city policies and operating models relating to the promotion of biodiversity. The descriptions briefly explain how the Biodiversity Programme is linked to various policies and operating models. The consideration of biodiversity in the various activities of the city is described in more detail in [Appendix 2](#).



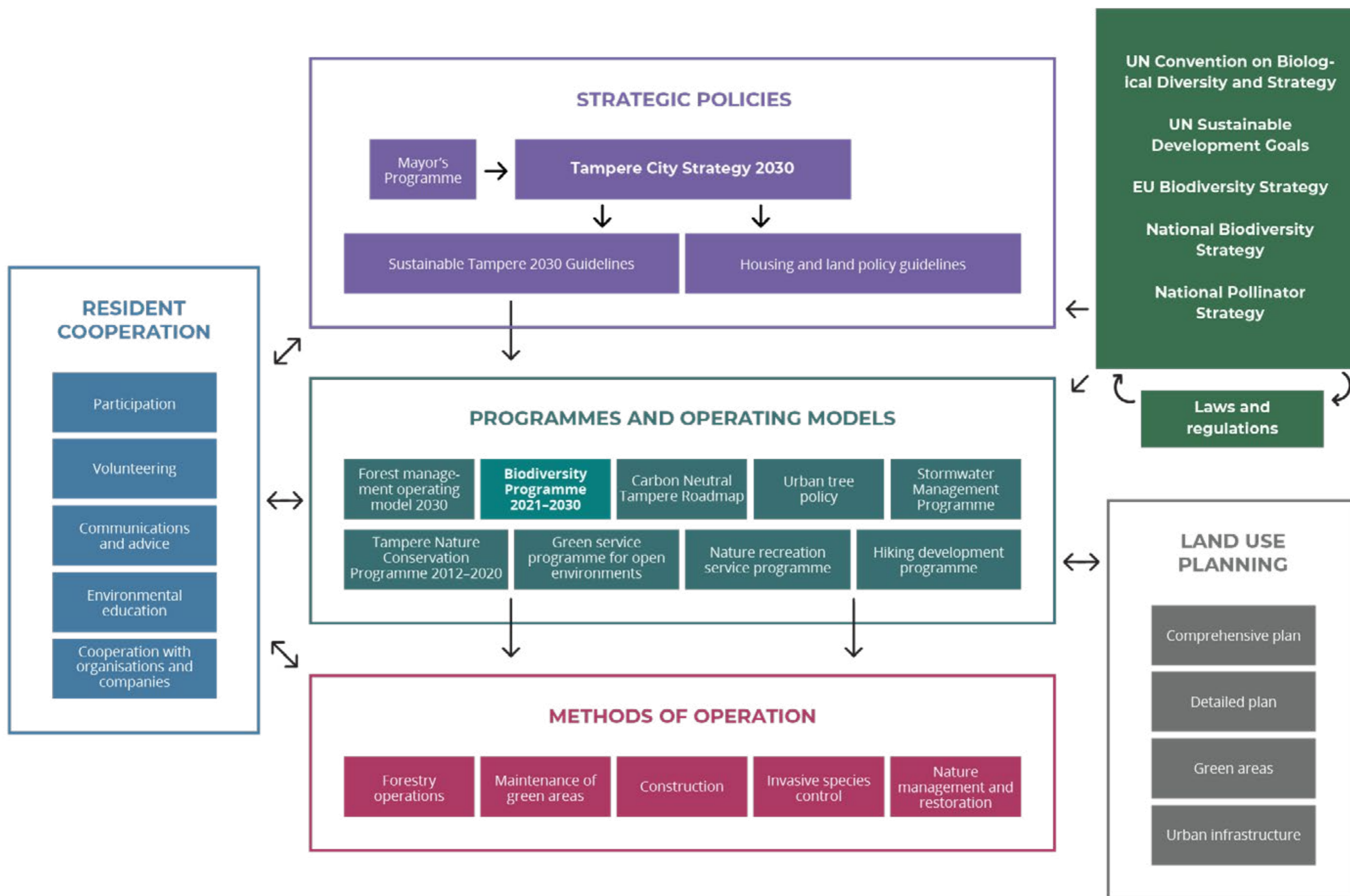


Figure 3. Promotion of biodiversity in the city's operations.

5.1 City policies and operating models linked to the Biodiversity Programme

Tampere City Strategy 2030

The Tampere City Strategy – The City of Action extends to 2030. It is based on recognised factors that will drive future changes and represents the long-term goals of the city's development. The update of the City Strategy started during the preparation of the Biodiversity Programme in early 2021. The new strategy was approved by the City Council on 15 November 2021. One of the goals set by the strategy for the council term 2021–2025 is that biodiversity in the urban environment will be strengthened and can be verified. The goal is measured by the implementation of the Biodiversity Programme.

Mayor's Programme

The Mayor's Programme for the council term brings together the views that the council groups in the Mayor's coalition have on the goals and guidelines for the coming council term. The programme is taken into account in the preparation of the strategy and in the documents of the strategic management system. The Tampere Mayor's Programme for 2021–2025 includes several goals relating to sustainable development and urban nature. The programme declares that improving the state of biodiversity must be a strategic goal for the coming council term and this ambition must be reflected in both the city's forest policy and the preparation of the Biodiversity Programme. According to the programme, Tampere must protect nature and be strongly involved in halting biodiversity loss. Preparation of the Biodiversity Programme started during the council term 2017–2021. In the Mayor's Programme for 2017–2021, the promotion of biodiversity was seen as one of Tampere's pull factors.

Housing and land policy guidelines

Tampere's housing and land policy guidelines guide the housing construction required for population growth, the emergence of competition in housing production, the affordability of housing as well as the goals and measures relating to the city's acquisition and assignment of land, the management of the city's land assets, the zoning of privately owned land and the promotion of construction in privately owned plots suitable for construction. The housing and land policy guidelines are updated each council term. The goals of the Biodiversity Programme and measures concerning housing and land policy have been taken into account in the update of the guidelines for the council term 2021–2025. Promoting biodiversity has been included as one of the goals of these guidelines. The preparation and implementation of the housing and land policy guidelines are the responsibility of the Real Estate and Housing service group.

Sustainable Tampere 2030 Guidelines

The Sustainable Tampere 2030 – Towards a Carbon-neutral City guidelines, i.e. the Tampere environmental policy guidelines, were approved by the City Council on 18 June 2018. The preparation of the environmental policy guidelines is led by the Climate and Environmental Policy Unit. The Biodiversity Programme is one means of implementing the guidelines, especially with regard to sustainable urban nature.

Carbon Neutral Tampere 2030 Roadmap

The Carbon Neutral Tampere 2030 Roadmap sets out the measures with which the City of Tampere strives for carbon neutrality by 2030. The roadmap implements the Sustainable Tampere 2030 Guidelines especially with regard to climate goals. In addition to measures to reduce greenhouse gas emissions, the roadmap also includes some measures relating to sustainable urban nature and biodiversity. The measures of the Biodiversity Programme and the Carbon Neutral Tampere 2030 Roadmap are parallel and complementary to each other. The Carbon Neutral Tampere 2030 Roadmap was compiled by the Sustainable Tampere 2030 Programme and is the responsibility of the Climate and Environmental Policy Unit.

Tampere Nature Conservation Programme 2012–2020

The Tampere Nature Conservation Programme was approved by the City Council on 10 December 2012. Approximately 1,200 hectares were designated for conservation under the programme, 923 hectares of which were designated for conservation under the Nature Conservation Act and the rest through zoning requirements and nature management measures. By autumn 2021, 19 of the 31 sites in the Nature Conservation Programme to be protected under the Nature Conservation Act had been protected. The Nature Conservation Programme ended in 2020, and the sites still in preparation will be protected as planned in the coming years. A separate final report will be drawn up on the Nature Conservation Programme. The completion of the Nature Conservation Programme and the preparation of further work are part of the measures of the Biodiversity Programme. The Environmental Protection Unit is responsible for the completion of the Nature Conservation Programme and preparation of further work in close cooperation with the Real Estate Department.

Forestry operations model

The forestry operations model 2030 outlines the principles for the management of the city's forest assets until 2030 and guides the preparation of more detailed forest plans. The goals of the Biodiversity Programme were taken into account in the update of the forestry operations model in 2021, and both have been prepared in parallel. The forestry operations model will

proceed to the approval process by the Housing and Real Estate Committee in spring 2022. The measures of the Biodiversity Programme complement and refine the forestry operations model. As the landowner, Tampere's Land Property Management is responsible for the preparation of the forestry operations model.

Stormwater Management Programme

The Tampere Stormwater Management Programme was drawn up in 2012. The Stormwater Management Programme outlines the general principles of stormwater management as well as goals that are catchment area-specific and take into account groundwater areas. The principles of the Stormwater Management Programme guide the management of stormwater on land owned by the City of Tampere. In addition, they guide the management of stormwater on privately owned land through the zoning requirements of the master and city plans and the permit processes relating to construction. The guidelines of the Stormwater Management Programme are a significant factor in urban water protection on the catchment area level and an important part of the city's controlled adaptation to climate change. The Stormwater Management Programme will be updated during the council term 2021–2025. The goals of the Biodiversity Programme will be taken into account in the preparation of the Stormwater Management Programme. The Stormwater Management Programme and the Biodiversity Programme support each other, and the Biodiversity Programme includes measures relating to the updating of the Stormwater Management Programme. The preparation of the Stormwater Management Programme is the responsibility of the Green Spaces and Stormwater Unit.

Urban tree policy

The Tampere urban tree policy was approved by the Committee for City Planning and Infrastructure Services on 22 December 2020. The urban tree policy guides the principles of the use and maintenance of trees in public parks, street and traffic areas and property yards. It also provides advice and guidance on the use of trees in private gardens. The goals of the Biodiversity Programme and the preparation of the invasive species policy were taken into account in the preparation of the urban tree policy. The prepared invasive species policy was later merged into the Biodiversity Programme after the urban tree policy was completed. The urban tree policy supports the achievement of the goals of the Biodiversity Programme.

Green service programme for open environments

The green service programme for open environments aims to improve the management level of meadows and arable areas, increase nature experiences and recreational opportunities for residents and increase

awareness of the importance of open green areas in the urban structure. The green service programme will increase landscape fields and pasture areas and strengthen the characteristics of the areas through maintenance. The green service programme for open environments was prepared for 2015–2025. The Biodiversity Programme includes measures relating to open environments that complement the service programme and its goals from the biodiversity perspective. The Biodiversity Programme's goals and measures for open environments will be taken into account if the green service programme is updated. The green service programme for open environments is the responsibility of the Green Spaces and Stormwater Unit.

Nature recreation service programme and hiking development programme

The purpose of the nature recreation service programme is to clarify the division of responsibilities between various city units regarding the maintenance and development of nature recreation areas. The programme will also survey the renovation needs of the sites covered by the programme, in particular with regard to structures enabling recreational use, and the development needs of nature recreation. The programme was drawn up in 2019 as a joint project between several city units. Based on the nature recreation service programme, the hiking development programme has been prepared, outlining on a general level the maintenance and development needs for hiking and other physical activities in Tampere-owned natural green areas without a city plan in 2021–2025. The programme was approved by the Housing and Real Estate Committee on 16 December 2020. Since the beginning of 2021, the Real Estate Department has been responsible for organising services for hiking and other physical activities in nature. The Biodiversity Programme includes goals and measures relating to the development of nature recreation services and environmental education and communication, which the nature recreation service programme and the hiking development programme implement in their part.

PART 2.

Goals and measures of the Biodiversity Programme

HOW TO READ THE PROGRAMME

The Tampere Biodiversity Programme includes six goals through which the city aims to safeguard biodiversity in Tampere in 2021–2030. The goals of the programme and the measures towards them are described below in their own chapters. In addition, the programme has highlighted as one of its key components the tools for managing natural capital and nature data, which are closely linked to the monitoring and control of all goals.

Priorities for action:

Below each goal, to facilitate the perception of the whole, we present the priorities for action in the city's Biodiversity Programme, i.e. the main themes on which the city will focus in order to achieve this goal.

Measures:

The individual measures, i.e. the practical means to reach the goals, are grouped under the priorities for action. Since the goals of the programme are broad, mutually supportive and interlinked, individual measures may have an impact on the achievement of several goals. For example, various measures to combat harmful invasive species also affect, for example, the protection of habitats and species, diversity of urban nature and, through volunteer efforts, cooperation with residents and communities. However, each measure is only listed under one goal.

Lead department and partners:

The implementation of the measures is the responsibility of various city units in cooperation with partners both within and outside the city organisation. Efforts have been made to assign a lead department within the city organisation for all measures. For measures for which a lead department has not yet been defined, the Environmental Protection Unit strives to seek a responsible party in the early part of the programming period. In the case of larger projects where the implementation of the measure is mostly the responsibility of a party outside the city, such as a state-funded research institute, the City of Tampere has designated the unit most closely involved in the work as the party responsible for the measure. In the lists of measures, the city units and external parties are referred to using the abbreviations explained on [page 5](#). The responsible parties and partners will be updated if needed.

Schedule:

An attempt has been made to estimate an indicative schedule for as many measures as possible. The measures include both specific separate projects,

such as surveys, and the development of continuous activities and operating models throughout the programming period. However, more detailed schedules are influenced by, among other things, the annual allocation of resources for the lead department. The schedules will be updated as the programme progresses, if necessary.

Cost estimate:

The programme presents indicative cost estimates for the priorities for action. The cost estimates are indicative and do not directly reflect the need for additional resources. The cost estimates do not take into account any direct or indirect savings or potential income arising from the measures. The costs of the separate projects are decided by the appropriate committees, for example in the annual budgets of the parties implementing them and in connection with the service and annual plans.

ORDER OF MAGNITUDE OF THE COST ESTIMATES FOR THE PROGRAMMING PERIOD



Figure 4. Orders of magnitude used in the cost estimates.

Implementation and monitoring of the programme:

Implementation of the programme's measures partially started in 2021.

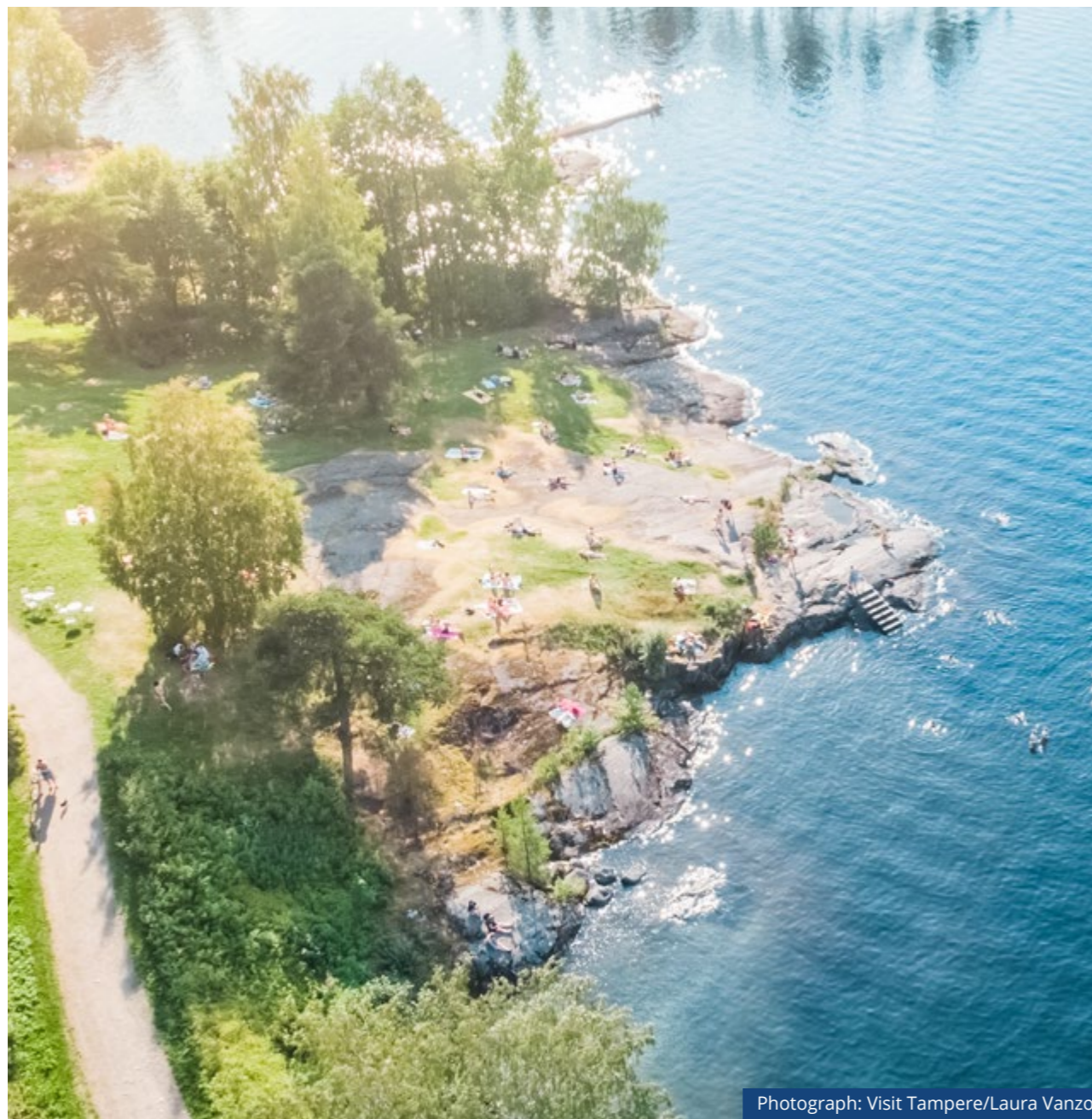
The implementation of the programme will be monitored together with the measures of the Carbon Neutral Tampere 2030 Roadmap in the monitoring system found on the City of Tampere's website, which is so far known as the Tampere Climate Watch.

Updating the programme:

In the course of the preparation of the programme, we have identified thematic areas relating to the prevention of biodiversity loss and the increase of biodiversity that could not be included in the work within the schedule. However, the programme and its measures will be updated as necessary. The need to update the measures will be reviewed at least once during the programming period, at the latest in the middle of the programme. The measures will be complemented from the point of view of promoting the health benefits of exposure to nature, taking into account the effects promoting both physical and mental health and social well-being. In addition, the measures need to be complemented with regard to, among other things, the identification of and intervention in the indirect effects of cities on

biodiversity loss and the promotion of the economic benefits gained from natural capital. The update of the measures will also include possible further measures in various pilot projects, for example.

The responsible parties have been defined in the programme in accordance with the 2022 organisational structure. If there are any changes to the organisational structure or to the responsibilities of the organisations during the Biodiversity Programme period, it must be ensured that the responsibilities for measures in the programme are also taken into account in the changes and updated.



Photograph: Visit Tampere/Laura Vanzo

GOALS	PRIORITIES FOR ACTION	
1. Urban nature is diverse and adaptable to climate change	1.1 We will take biodiversity into account in the city's strategic development	
	1.2 We will take biodiversity into account in city planning and construction	
	1.3 We will enrich urban nature	
2. Endangered habitat types and species are protected	2.1 We will protect valuable natural sites	
	2.2 We will manage and restore natural sites	
	2.3 We will take species-specific conservation measures	
	2.4 We will develop the consideration of natural values in land use planning	
3. Ecological networks are functional and comprehensive	3.1 We will identify and define the various types of ecological networks	
	3.2 We will indicate the ecological networks	
	3.3 We will safeguard and develop the ecological networks	
4. The state of water systems and small water bodies is good and their biota are diverse and vital	4.1 We will improve the level of knowledge about aquatic ecosystems in Tampere	
	4.2 We will improve the state of aquatic habitats	
5. The control of harmful invasive species is effective and functional	5.1 We will strive to prevent the spread of invasive species in Tampere	
	5.2 We will fight against invasive species in an organised manner	
	5.3 We will strengthen the role of residents and communities in invasive species control	
	5.4 We will develop the collection and utilisation of invasive species data	
6. Residents and communities are aware of local nature values and want to work to support them	6.1 We will develop environmental education and communication	
	6.2 We will promote volunteering	
	6.3 We will develop cooperation between the city and communities	
	6.4 We will promote an understanding of the importance of natural capital and its sustainable use	
NATURAL CAPITAL AND NATURE DATA MANAGEMENT TOOLS		
Ecosystem accounting	Biodiversity Indicators	Management of geographic datasets

Figure 5. The table presents the goals of the Biodiversity Programme and the related priorities for action, i.e. the main themes on which the city will focus in order to achieve these goals. In addition, the tools for managing natural capital and nature data linked to all goals and priorities are also presented separately.

GOAL 1:

Urban nature is diverse and adaptable to climate change

The aim of the Biodiversity Programme is to safeguard urban biodiversity throughout the city, including in the immediate surroundings of city residents. Nature is not only located outside cities or in conservation areas; places like gardens, parks, wastelands, ditches, roofs, roadsides, urban trees and nearby forests are also natural sites that can provide habitats for a wide variety of species. By taking care of the biodiversity of local

nature, we also take care of the ecosystem services it provides and prepare for climate change. As the effects of climate change can no longer be completely avoided, in addition to mitigation measures, it is also necessary to ensure the adaptation conditions and resilience of urban nature after sudden disturbances.

Priorities for action

- 1.1 We will take biodiversity into account in the city's strategic development
- 1.2 We will take biodiversity into account in city planning and construction
- 1.3 We will enrich urban nature

1.1 We will take biodiversity into account in the city's strategic development

1. Strengthening the biodiversity perspective in strategic development and as part of sustainable development

Strengthening biodiversity has been included in the priorities of the City of Action strategy and the goals for the council term. In addition, it must be ensured that the goals of the Biodiversity Programme are included in other parts of the strategic management system, in the monitoring and evaluation of sustainable development and, through these, in practical action.

Lead department: STRAKE
Cooperation partners: YSU, ILY
Schedule: Starting in 2021

2. Taking the goals of the Biodiversity Programme into account in the housing and land policy guidelines

Among other things, the housing and land policy guidelines guide the principles of the city's land acquisition and the city's activities as a landowner. So far, the guidelines have not taken biodiversity into account separately.

Lead department: KITIA
Cooperation partners: YSU
Schedule: Starting in 2021. The guidelines are updated each council term.



3. Compiling a green roof policy

The green roof policy expresses Tampere's will and means to increase the number of green roofs in the cityscape. The outline covers both the city's policy instruments through zoning, for example, and the principles of promoting green roofs in the city's own construction projects. Green roofs offer more diverse habitats for both plants and insects than traditional roofing solutions.

Lead department: VIHU
Cooperation partners: AKA, YKA, YSU, KITIA, TIPA
Schedule: 2021–2023

Cost estimate for the priority: ●○○○○○
(See the reading instructions on page 27.)

1.2 We will take biodiversity into account in city planning and construction

4. Safeguarding and developing local nature and its biodiversity and accessibility as part of a comfortable living environment

We will take into account the importance of local nature for well-being and ensure that local nature is accessible to residents at different stages of their lives. We will promote solutions that enhance local nature and its biodiversity.

Lead department: AKA
Cooperation partners: VIHU, YSU
Schedule: continuous work

5. Supplementing the Urban Space Manual with design guidelines relating to biodiversity

The Urban Space Manual collects the City of Tampere's public urban space design guidelines and policies together in one place. The Urban Space Manual will be updated continuously.

Lead department: YSU
Cooperation partners: VIHU, LUMU, TEKSU
Schedule: Starting in 2022, continuous work

6. Providing land use planning with training in how to take natural values into account

The preparatory work for the programme has expressed the need for further training to take natural values into account in the various aspects of land use planning. The more specific target groups and themes of the training sessions will be specified later.

Lead department: AKA
Cooperation partners: YSU
Schedule: Starting in 2022

7. Developing guidelines for land use planners and construction sites regarding the consideration of nature data

The city has a wide variety of geographic datasets relating to nature and the environment. In addition, nature data is available in national systems. Instructions on how to check all the necessary information varies from unit to unit and there are differences in practices.

Lead department: YSU
Cooperation partners: VIHU, AKA, KITIA, Ekok, Infra
Schedule: Starting in 2021, continuous work

8. Developing ways of reconciling natural and recreational values in land use planning

The "Nature-based solutions to the challenges of urbanisation" project examines how the planning process could better incorporate biodiversity, existing natural and recreational values as well as people's wishes for the comfort of urban and residential areas.

Lead department: LUMU, VIHU
Cooperation partners: Ekok, TUNI
Schedule: Starting in 2021

9. Applying the principles of sustainable environmental planning established by the Finnish Association of Landscape Industries in the planning of green areas

The Finnish Association of Landscape Industries has developed an operating model for sustainable environmental planning, which aims to avoid, mitigate, prevent and compensate for the adverse effects of construction on the environment. The operating model also takes into account the adverse effects on local nature and biodiversity.

Lead department: VIHU
Cooperation partners: IOH, RAKSA
Schedule: during the programming period

10. Developing the consideration of natural values in lighting design

Artificial light is known to affect the behaviour of biota. Some bat species, for example, are particularly sensitive to artificial light. Artificial lighting also affects the behaviour of birds and insects. During the programming period, principles and guidelines for reconciling lighting needs and natural values will be developed. The general principles of lighting are outlined in the City of Tampere's outdoor lighting policies.

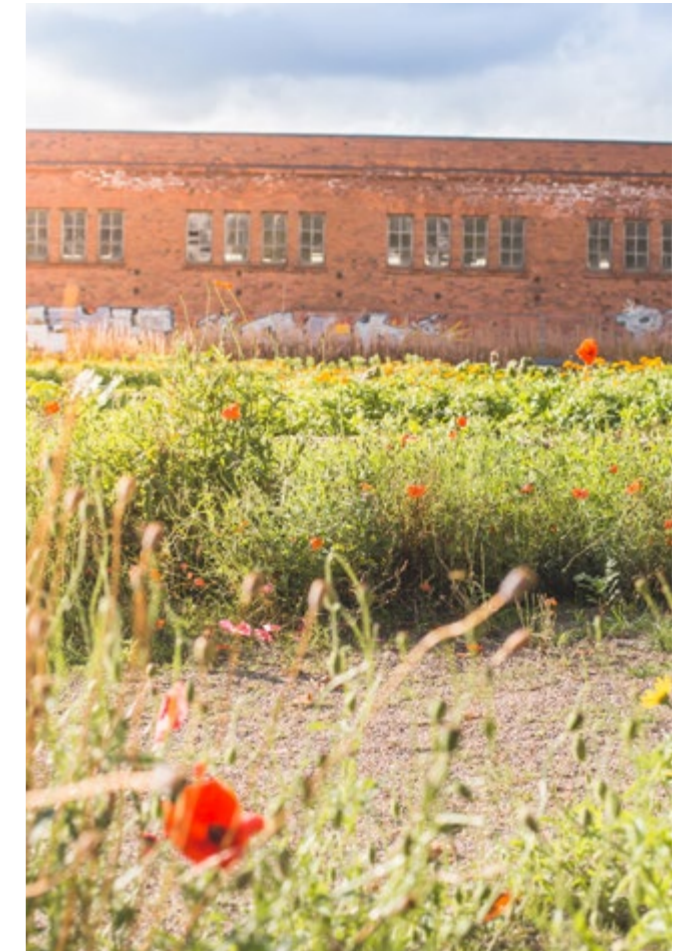
Lead department: IOH
Cooperation partners: YSU, VIHU, TEKSU
Schedule: Starting in 2021

11. Developing and expanding nature-based stormwater solutions

Nature-based stormwater solutions can support biodiversity in cities. In addition, nature-based stormwater solutions support water protection and, thereby, the vitality of aquatic habitats both within and outside the inner city. Nature-based stormwater solutions include various wetlands and vegetation-covered green hollows that delay and filter water.

Lead department: VIHU, AKA
Cooperation partners: YSU, IOH, TEKSU
Schedule: Starting in 2021

Cost estimate for the priority: ●●●○○○
(See the reading instructions on page 27.)



Photographs: Visit Tampere/Laura Vanzo

1.3 We will enrich urban nature

12. Increasing the use of indigenous wild plants in green areas and diversifying the selection of species and varieties of urban vegetation

The diversification of the vegetation in green areas supports the diversity and vitality of insect species and species groups dependent on insect food. The diversity of plant species also helps urban nature to adapt to climate change.

Lead department: VIHU
Cooperation partners: IOH, RAKSA, Infra
Schedule: during the programming period

13. Increasing the number of urban meadows of various types with diverse species

Experiments will be carried out with various types of mesic and dry meadows. Areas managed as meadows will be added to new and renovated green areas. Based on the experiments, the operations will be developed more widely. Meadows allow a more diverse selection of species than lawns. A significant proportion of Finland's endangered and vulnerable species depend on open meadow habitats.

Lead department: VIHU, IOH
Cooperation partners: YSU, Infra, RAKSA
Schedule: during the programming period

14. Increasing the use of Finnish mesic and dry meadow plants in street plan areas

Open roadsides and road embankments can be important habitats for many species of plants and insects that thrive in dry or xerothermic environments. The diversification of species also supports the vitality of domestic pollinator insects.

Lead department: TEKSU
Cooperation partners: IOH, RAKSA, VIHU, YSU
Schedule: Starting in 2022

15. Developing maintenance instructions for the management of new mesic and dry meadows in their establishment phase

For the time being, the guidelines for the maintenance of new meadows in their establishment years are insufficient. The management of new mesic and dry meadows will guide their development in the desired direction.

Lead department: IOH
Cooperation partners: VIHU, YSU, Infra
Schedule: 2023

16. Piloting the diversification of lawn mowing techniques in parks

Experiences of different lawn mowing techniques will be collected in the maintenance of the built environment. The pilots will include reducing the mowing of lawns on suitable sites and enabling natural meadow development. The pilots will also take into account experiments with the cutting of flowering plants with a staggered schedule. The operations will be developed based on the feedback from the pilots.

Lead department: IOH
Cooperation partners: VIHU, Infra
Schedule: Starting in 2022

17. More exact scheduling of the cutting of roadside vegetation

The implementation of these measures will be started by piloting new approaches. When the cutting of roadside vegetation is scheduled more exactly and reduced, meadow plants can be allowed to produce seeds, for example. With regard to the time of mowing, however, consideration must also be given to aspects such as traffic safety and the need to control any invasive species.

Lead department: IOH
Cooperation partners: Infra, YSU, VIHU
Schedule: continuous work, planning of pilot sites
Starting in 2022

18. KIEPPI project in Hiedanranta, making use of natural vegetation

As part of a project to promote the circular economy in the new Hiedanranta residential area, the Wild Zone association investigated the area's cultural vegetation, which is about to be destroyed by new construction. Using seeds from the plants, a vegetation enrichment meadow was established in the area and can be used as a seed bank for urban landscaping in the new area to be built.

Lead department: KT2030
Cooperation partners: VIHU
Schedule: The survey and the establishment of the enrichment meadow were completed in 2021. The schedule for utilising the enrichment meadow will be further specified as the planning of the residential area progresses.

19. Temporary xerothermic environments at Viinikanlahti wastewater treatment plant

The work started in 2020. Temporary xerothermic environments have been created at the Viinikanlahti wastewater treatment plant in cooperation with the Wild Zone association. These environments are being used to grow a Tampere-based seed bank for xerothermic environments. The seed bank can be used in Tampere's urban landscaping projects in the future.

Lead department: IOH, RAKSA
Cooperation partners: VIHU, Five-star City Centre programme
Schedule: Starting in 2020

20. Considering and increasing the amount of dead wood in city parks and park planning

The addition of dead wood to parks will improve the living conditions of pollinator insects in the urban environment, the quality of the soil and the living conditions of fungi, moss, insects and bird species dependent on dead wood. The measure is primarily implemented through experiments and pilots.

Lead department: VIHU
Cooperation partners: YSU, KITIA, IOH, Infra
Schedule: Starting in 2022

21. Developing soil management in built-up green areas

The shredding of leaf litter will be piloted in various park areas instead of transporting it to Tarastenjärvi. Increasing the amount of organic matter remaining on lawns can improve soil quality and the living conditions of soil organisms.

Lead department: IOH
Cooperation partners: VIHU, YSU, Infra
Schedule: Starting in 2022

22. Examining the effects of forest management on biodiversity in urban forests

A larger project by the Natural Resources Institute Finland to study the effects of urban forest management on biodiversity. Several municipalities are involved in the project. The Natural Resources Institute Finland will fund half of the two-year project.

Lead department: KITIA, YSU
Cooperation partners: ILY
Schedule: 2022-2023

23. Increasing grazing in areas owned by the City of Tampere compared to the situation in 2021

Overgrowth in open areas is a significant cause of species endangerment in Finland and the Tampere region. Grazing opens up excessively lush and overgrowing habitats. Grazing also supports the control of invasive species. In nature reserves, the responsibility for planning and organising grazing lies with YSU. In green areas covered by a city plan, VIHU is responsible for the planning and IOH for the implementation.

Lead department: YSU, VIHU
Cooperation partners: KITIA, IOH, Infra
Schedule: Starting in 2022

Cost estimate for the priority: ●●●○○○
(See the reading instructions on page 27.)

GOAL 2:

Endangered habitat types and species are protected

The second goal of the programme is to protect endangered habitat types and species. Despite national and international biodiversity agreements and targets, the share of endangered species in all species assessed in Finland has grown in each assessment round. One-third of Finland's birds and moss species and about a quarter of our lichen species are already endangered. Of the habitat types in Southern Finland, more than half have been assessed as endangered. The Tampere region has concentrated occurrences of endangered species like the false heath fritillary and European white elm. The city has a good opportunity to safeguard species and habitat types through land use planning and environmental management.

In the conservation of species and habitat types, the city focuses on habitat types and species that are

taken into account in legislation, as well as on the conservation of habitat types and species that have been identified as endangered in national assessments. The focus of conservation is on those species and habitat types whose occurrences are concentrated in Tampere or for whose occurrence the Tampere region is otherwise important. These are presented in the completed regional endangerment assessment.⁸ In addition to the creation of nature reserves in accordance with the Nature Conservation Act, the means of conservation include protection regulations in zoning and their consideration in the use of the areas, active management and restoration of habitats. Knowledge-based conservation planning requires up-to-date information on the state of nature and the environment, so various surveys are also an important part of the conservation of habitat types and species.

Priorities for action

- 2.1 We will protect valuable natural sites
- 2.2 We will manage and restore natural sites
- 2.3 We will take species-specific conservation measures
- 2.4 We will develop the consideration of natural values in land use planning

2.1 We will protect valuable natural sites

24. In the Nature Conservation Programme 2012–2020, sites that are to be protected under the Nature Conservation Act and have not yet been protected are prepared for conservation in accordance with the programme

Some of the sites in the Nature Conservation Programme that are intended to be protected under the Nature

Conservation Act have still not been protected due to schedules relating to land use coordination and a lack of resources. The rest of the sites in the programme will be prepared for conservation.

Lead department: YSU
Cooperation partners: KITIA
Schedule: 2021–2025



25. Conserving forests of high natural value

Forests can be conserved as nature reserves or high conservation value forests. Conservation can also be implemented, for example, as part of the METSO or Helmi programmes.

Lead department: KITIA
Cooperation partners: YSU
Schedule: during the programming period

26. Updating the Nature Conservation Programme

The amount of nature data has increased since the Tampere Nature Conservation Programme 2012–2020 was drawn up. The conservation needs of species and habitat types have also changed. The complementary sites of the conservation programme will be selected on the basis of natural scientific significance, taking into account the specific features of the Tampere region. Conservation can also be implemented, for example, as part of the METSO and Helmi programmes.

Lead department: YSU
Cooperation partners: KITIA, YKA
Schedule: 2021–2025

27. Carrying out a habitat type survey in nature reserves

The natural values of nature reserves have not been systematically surveyed or monitored over the past 10 years. Knowing the habitat types and monitoring their condition are critical for the planning of the management of nature reserves and the monitoring of conservation measures.

Lead department: YSU
Cooperation partners:
Schedule: Starting in 2023

28. Carrying out a habitat type survey for the update targets in the nature conservation programme

When the nature conservation programme is updated, the habitat type survey is the basis for recognising the natural scientific significance of natural values.

Lead department: YSU
Cooperation partners:
Schedule: Starting in 2022

29. Complementing the METSO surveys

The conservation criteria of the voluntary METSO programme for protecting forest biodiversity have been updated since the last survey round in Tampere. METSO surveys provide information on the natural values of forest habitats and the quality of the habitats. A survey does not oblige protection.

Lead department: KITIA
Cooperation partners: YSU
Schedule: 2022–2030

30. Preventing footfall erosion in nature reserves and disturbance due to recreational use by building and maintaining signs, structures and access routes in nature reserves

Various types of path renovation protect sensitive nature by guiding access and, on the other hand, enable people to get to know the areas. Information boards are used to increase knowledge of the nature and permitted activities in the area.

Lead department: YSU
Cooperation partners: VIHU, KITIA, LUMU, Ekok
Schedule: continuous work

31. Reducing recreational pressures on nature reserves by developing city hiking services outside nature reserves

Recreational structures in Tampere have previously focused on nature reserves, whose primary purpose is to protect the local nature. Developing hiking areas outside nature reserves will alleviate the recreational pressure on the nature reserves in the growing city. The concentration of recreational use in nature reserves increases footfall erosion and, among other things, unintended disturbance of nesting birds. The implementation and costs of the measure are included in the hiking development programme.

Lead department: KITIA
Cooperation partners: YSU, VIHU, Ekok, LUMU
Schedule: during the programming period

Cost estimate for the priority: ●●○○○
(See the reading instructions on page 27.)

2.2 We will manage and restore natural sites

32. Restoring forests and peatlands in the Kintulammi nature reserve according to separate plans

Some of the drained peatlands in Kintulammi have been dammed as part of volunteer work carried out by the Kintulammi restoration team. The damming/restoration will be continued. Some machine work will be required later. A suitable site to be restored by prescribed burning will be sought in the area.

Lead department: YSU, KITIA
Cooperation partners: Associations, PIRELY, Ekok
Schedule: Starting in 2021

33. Monitoring restored peatlands in Kintulammi

To monitor the effects of restoration, permanent test sites for vegetation, trees and saplings will be established on Kintulammi's peatlands that have been or will be restored. The monitoring started in 2021 and will be repeated every five years.

Lead department: YSU
Cooperation partners:
Schedule: Starting in 2021

34. All traditional rural biotopes and suitable new habitats on land owned by the City of Tampere will be brought under regular management appropriate to the habitat type

All of Finland's traditional rural biotopes were classified as endangered in the classification of endangered habitat types in 2018. The management of sites previously considered to be of lesser value in a way that enhances the natural values of traditional rural biotopes is also important for the conservation of the habitat types. The valuation of the sites will be done according to the inventory guidelines for traditional rural biotopes.

Lead department: IOH, KITIA
Cooperation partners: YSU, VIHU, Infra
Schedule: Starting in 2022

35. Preparing a management and use plan for the Solkivuori forest area

Solkivuori is a forest area owned by the City of Tampere that is located north of Hervanta and reserved for the protection and management of the flying squirrel. The Wild Zone association, the Pirkanmaa District of the Finnish Association for Nature Conservation and Tampereen Ympäristönsuojeluyhdistys presented the city with a proposal for a forest area focusing on conservation on 30 August 2016. No management and use plan has yet been established for the area.

Lead department: KITIA
Cooperation partners: YSU, environmental organisations, ELY
Schedule: 2021–2025

36. Updating or drawing up up-to-date management and use plans for the management sites in the nature conservation programme

The Tampere Nature Conservation Programme 2012–2020 identified sites to be protected with management measures. Not all sites have an up-to-date management plan to safeguard their natural values.

Lead department: YSU
Cooperation partners: VIHU, KITIA, Infra, IOH
Schedule: Starting in 2022

37. Reviewing the need to update the management and use plans of city-owned nature reserves

The Tampere Nature Conservation Programme 2012–2020 identified sites to be protected with management measures. Not all sites have an up-to-date management plan to safeguard their natural values.

Lead department: YSU
Cooperation partners: VIHU, KITIA, Infra, IOH
Schedule: Starting in 2022

38. Identifying nature management needs for valuable habitat types

The correct and appropriate targeting of nature management measures, taking into account the specific values of habitat types, requires separate surveys as the basis for planning. Valuable habitats include ridges, xerothermic hillsides, herb-rich forests, peatlands and

wetlands.

Lead department: KITIA
Cooperation partners: YSU
Schedule: Starting in 2022

39. Targeting restorative nature management measures for valuable habitat types based on surveys

Restorative and natural value-building nature management measures will be targeted on the basis of the surveys specified in measure 38. Restorative measures may include prescribed burning, adding dead wood, increasing openness in ridge forests, preventing spruce growth in herb-rich forests, establishing/restoring wetlands or damming ditches on peatlands.

Lead department: KITIA
Cooperation partners: YSU
Schedule: Starting in 2023

40. Surveying the quantity and quality of dead wood in forests owned by the City of Tampere

The amount of dead wood in forests owned by the City of Tampere has not been systematically surveyed. Surveying the amount of dead wood is a prerequisite for promoting knowledge-based nature conservation in the city's forests and for implementing measure 41.

Lead department: KITIA
Cooperation partners: YSU
Schedule: 2021–2025

41. Setting quantitative and qualitative targets for the addition of dead wood in city-owned forests

By increasing the amount of dead wood, the living conditions of species both directly and indirectly dependent on dead wood will be improved. Dead wood is created naturally, but it can also be produced in connection with nature management work. Nature management work can be targeted by making use of surveying results and geographic data analyses of the dead wood potential. Dead wood will be made and left in the forests in accordance with the guidelines of the forestry operations model.

Lead department: KITIA
Cooperation partners: YSU, VIHU, IOH
Schedule: The schedule will be further specified after the dead wood surveys.

42. Reviewing the maintenance RAMS categories and updating the conservation area management cards for areas to be protected on a voluntary basis (formerly S3)

The ABC management classification guiding the management of green areas changed to RAMS maintenance categories in 2021. During and after the technical updating of the maintenance categories, it is also necessary to examine the need to update the management classifications of the areas from the perspective of the maintenance target level.

Lead department: IOH
Cooperation partners: YSU, VIHU, KITIA, Infra
Schedule: 2021–2025

43. Piloting a natural value compensation project

During the programming period, the City of Tampere will implement a project relating to natural value compensation. The project is not yet known. The project to be carried out by the city can be, for example, voluntary compensation for another project or a project relating to the certified production of natural values.

Lead department: KITIA
Cooperation partners: YSU, YKA, AKA
Schedule: no schedule yet

Cost estimate for the priority: ●●○○○○
(See the reading instructions on page 27.)

2.3 We will take species-specific conservation measures

44. Drawing up separate species conservation plans as part of the nature conservation programme and implementing the measures of the plans

Species conservation measures will be updated in line with the prioritisation of the completed regional

endangerment assessment. The measures will be planned and targeted as cost-effectively as possible.

Lead department: YSU
Cooperation partners: LUMU, VIHU, KITIA, AKA
Schedule: Starting in 2022

45. Carrying out species surveys in nature reserves based on an annually updated plan

Separate surveys of species or groups of species will be carried out in nature reserves and, if necessary, elsewhere. The surveys will maintain the city's nature data and monitor the impact of conservation measures.

Lead department: YSU
Cooperation partners:
Schedule: Starting in 2022

46. Preparing a model for flying squirrels to ensure a favourable level of conservation of the species in Tampere

The flying squirrel is well established throughout most of Tampere, with the exception of the city centre. The operating model will clarify the planning and construction phases concerning flying squirrel areas and support the conservation of the species.

Lead department: YSU
Cooperation partners: YKA, AKA, VIHU, Rava, TEKSU, ELY
Schedule: 2022

47. Monitoring the occurrence of the flying squirrel in nature reserves annually

The occurrence of the flying squirrel in nature reserves has not been monitored before, and observations are concentrated outside the nature reserves, in areas where the pressure for land use changes is greatest. It is possible to survey 1–2 areas per year as official work.

Lead department: YSU
Cooperation partners:
Schedule: Starting in 2022

48. Preparing a green shield-moss survey in the inner city during the council period 2021–2025 and implementing the conclusions in land use planning

Green shield-moss is an endangered and protected small moss species growing on dead wood and is listed in Annex II of the Habitats Directive. Thanks to new surveying methods, the number of observations of the species in Finland and Tampere has increased exponentially over the past few years. The aim of the survey is to determine the local distribution of the species and to draw up a conservation plan.

Lead department: YKA
Cooperation partners: YSU, AKA
Schedule: 2021–2025

Cost estimate for the priority: ●●○○○○
(See the reading instructions on page 27.)

2.4 We will develop the consideration of natural values in land use planning

49. Developing regulations concerning nature conservation in city planning

Regulations concerning nature conservation in city planning will be developed and updated as required. The updating will primarily be carried out in connection with the applicable detailed plans.

Lead department: AKA
Cooperation partners: YSU, Rava
Schedule: continuous work

50. Updating city plan entries for the conservation of bats

City planning already protects bats' breeding sites and resting places as referred to in the Nature Conservation Act as well as significant foraging areas and important passages. With regard to foraging areas and passages, it has been noted that the regulations need to be improved.

Lead department: AKA
Cooperation partners: YSU, VIHU, Rava
Schedule: in connection with the applicable detailed plans

Cost estimate for the priority: ●○○○○○
(See the reading instructions on page 27.)

GOAL 3:

Ecological networks are functional and comprehensive

The third goal is comprehensive and functional ecological networks. Urban habitats are characterised by their small size and fragmentation, exposing species to local extinctions due to random factors. Ecological networks enable the natural spreading of species from one habitat to another and safeguard

genetic diversity. In a densifying and growing city, the preservation and development of ecological networks that maintain biodiversity require proactive, long-term and committed work from all city actors, from master planning to maintenance.

Priorities for action

- 3.1 We will identify and define the various types of ecological networks
- 3.2 We will indicate the ecological networks
- 3.3 We will safeguard and develop the ecological networks

3.1 We will identify and define the various types of ecological networks

51. Specifying the central park network in the inner-city master plan in more detail

The survey will primarily use existing information. The survey will include a sectoral assessment of the network as well as descriptions and measures. Its conclusions will be incorporated into the master plan. The specification is part of the identification and development of the diversity of ecological networks, and the conclusions of the survey will be incorporated into the master plan. The specification is linked to measures 52 and 54.

Lead department: YKA
Cooperation partners: YSU, VIHU
Schedule: 2021–2025

52. Reviewing the functionality of the ecological network in the inner-city master plan

The review of the ecological network includes a sensitivity review of the risk locations and weak links in the network. The review may also include a sectoral adaptation assessment of the network from the perspective of climate change, for example.

Lead department: YKA
Cooperation partners: YSU, VIHU
Schedule: 2021–2025

Cost estimate for the priority: ●○○○○○
(See the reading instructions on page 27.)



3.2 We will indicate the ecological networks

53. The comprehensive plan indicates the network of important free-flow channels

The comprehensive plan guides the city's land use and its more detailed planning in the long term. The comprehensive plan is adopted by the City Council and updated each council term.

Lead department: YKA
Cooperation partners: YSU, VIHU
Schedule: 2021–2025

54. Examining the way wildlife corridors are indicated in the inner-city comprehensive plan

The comprehensive plan indicates, now and in the future, the broader wildlife corridors within the city. The comprehensive plan can indicate both targeted and existing wildlife corridors. In the current comprehensive plan, wildlife corridors between parts of the central park network are specified on an indicative basis and through the need for connecting trees. There are, however, wildlife corridors and connection needs relating to the blue network and open areas, for example.

Lead department: YKA
Cooperation partners: YSU, VIHU
Schedule: 2021–2025

55. Developing detailed plan regulations for wildlife corridors

Ways of marking wildlife corridors that cross city plan boundaries or go over or under roads and railways will be developed in city planning.

Lead department: AKA
Cooperation partners: YSU, VIHU, Rava
Schedule: in connection with the applicable detailed plans

Cost estimate for the priority: ●○○○○○
(See the reading instructions on page 27.)

3.3 We will safeguard and develop the ecological networks

56. Taking into account the goals for wildlife corridors indicated in the comprehensive plans and detailed plans in other land use planning

The comprehensive plan guides the long-term development of the city also in terms of wildlife corridors. However, the comprehensive plan's goals are realised in small pieces around the city, for example through separate detailed plans, street renovations and park construction. Improving wildlife corridors and taking the need for them into account in the comprehensive plan at all planning levels is a prerequisite for their implementation.

Lead department: IOH, TEKSU, VIHU, Raksa
Cooperation partners: YSU
Schedule: Starting in 2021

57. Exploring the use of the green factor principle and the definition of the canopy cover target in the comprehensive planning

A tool used in city planning in Tampere, the green factor is used to guide, for example, the amount of urban greenery and the improvement of stormwater management. The comprehensive plan's green factor tool can be used to support, in particular, the protection of wildlife corridors with trees in the comprehensive plan area and the enrichment of urban nature.

Lead department: YKA
Cooperation partners: VIHU, YSU, AKA
Schedule: 2021–2025 or 2025–2029

58. Improving the integration of the goals of ecological networks of comprehensive and detailed plans in forest management

The comprehensive and detailed plans may set provisions regarding the targeted quality of the environment. This could mean, for example, supplementary planting or increasing the openness of the environment.

Lead department: KITIA, VIHU
Cooperation partners: YSU
Schedule: Starting in 2021

59. Taking the role of significant small urban water bodies and open ditches as parts of the ecological network and habitats into account in the update of the Stormwater Management Programme

The Stormwater Management Programme guides the principles of stormwater management in Tampere, both in zoning and other planning.

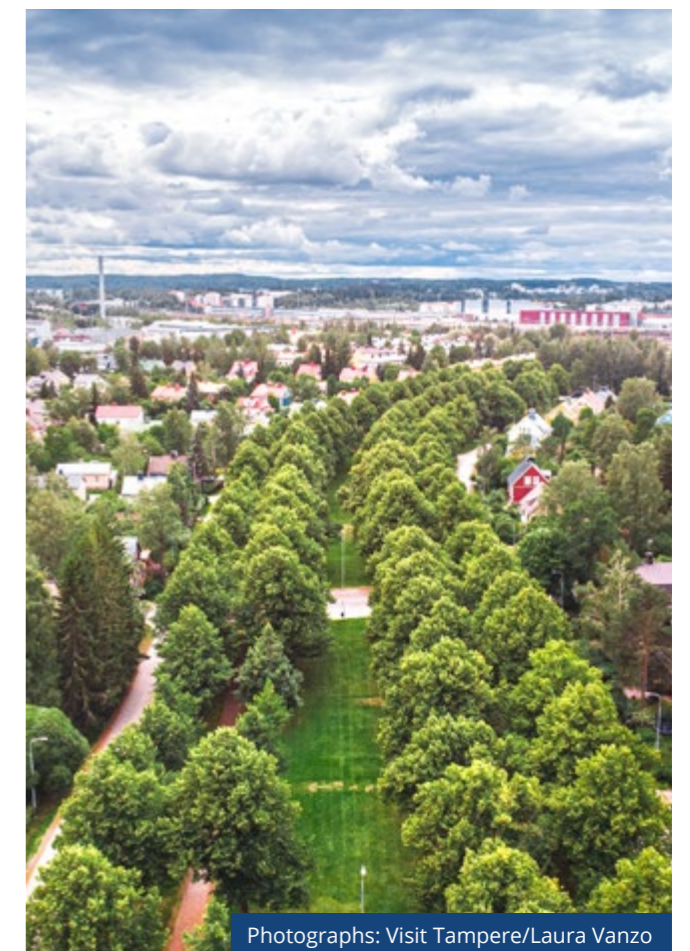
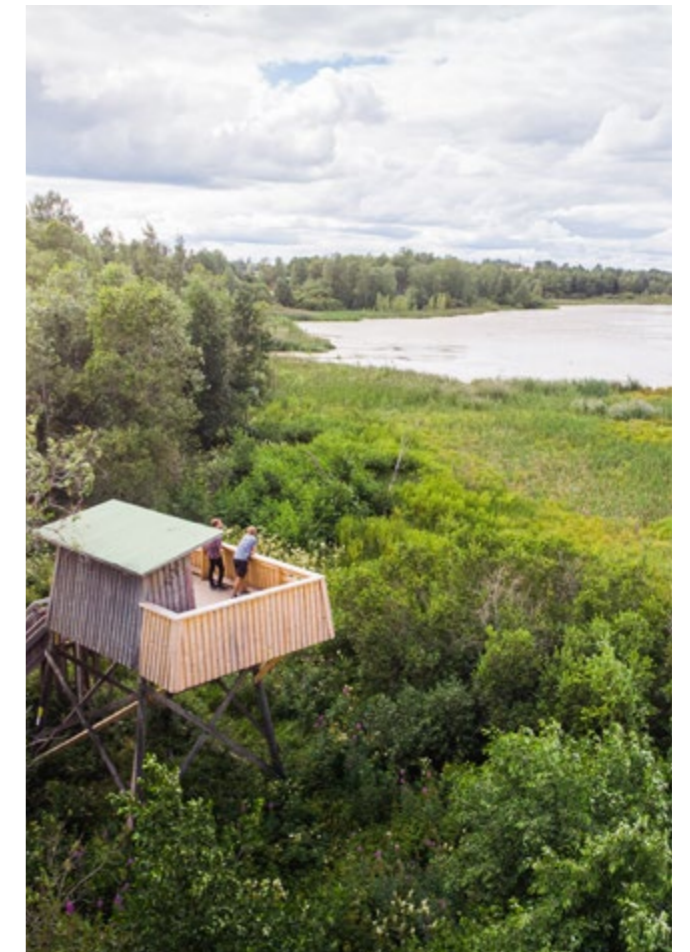
Lead department: VIHU
Cooperation partners: YSU, YKA, AKA, IOH
Schedule: Starting in 2021

60. Considering significant small water bodies as wildlife corridors in street plans

In street renovations, the significant urban ditches specified are taken into account as wildlife corridors. Efforts will be made in planning to improve the quality of the wildlife corridors. This could mean, among other things, the removal of structures limiting the passage of fish, bridging structures enabling the passage of animals and the construction of dry paths.

Lead department: TEKSU
Cooperation partners: VIHU, YSU, LISU
Schedule: during the programming period

Cost estimate for the priority: ●●○○○○
(See the reading instructions on page 27.)



Photographs: Visit Tampere/Laura Vanzo

GOAL 4:

The state of water systems and small water bodies is good and their biota are diverse and vibrant

There is nature underwater, too, and the fourth goal of the programme is to safeguard aquatic biodiversity. The good chemical and ecological condition of water bodies is a prerequisite for their function as high-quality habitats for water and shore species. The state of water bodies is significantly affected by the measures taken in their catchment areas. Most of the small water bodies in Southern Finland belong to endangered habitat types. For example, Tampere also has urban streams whose condition has deteriorated. Small water bodies are rich in endangered species, including fish, aquatic

insects, mosses and vascular plants. Water ecosystems in good condition also provide significant added value for humans in the form of ecosystem services such as fishing, nature recreation, water treatment and storm water management.

Measures affecting water bodies and the state of water bodies are also partly covered by other goals. For example, projects for the restoration of various wetland habitats often also improve the quality of water bodies.

Priorities for action

- 4.1 We will improve the level of knowledge about aquatic ecosystems in Tampere
- 4.2 We will improve the state of aquatic habitats

4.1 We will improve the level of knowledge about aquatic ecosystems in Tampere

61. Updating the survey of small water bodies in the inner city in terms of the assessment of natural state

The previous survey of small water bodies was carried out in 2011. Since then, the legislation has changed and interpretation guidelines have become available especially for the assessment of natural state. A survey of springs was carried out on land owned by the City of Tampere in the inner city in 2020 but, with regard to streams, it is necessary to update the survey of small water bodies.

Lead department: YSU, YKA
Cooperation partners: VIHU
Schedule: Starting in 2022

62. Carrying out species surveys in aquatic habitats based on an annually updated plan

Basic knowledge about the city's aquatic species is significantly weaker than knowledge about terrestrial species. Systematic species surveys are a prerequisite for the promotion of knowledge-based nature and water conservation.

Lead department: YSU
Cooperation partners: VIHU, KITIA
Schedule: annually

Cost estimate for the priority: ●○○○○○
(See the reading instructions on page 27.)



4.2 We will improve the state of aquatic habitats

63. Leaving buffer zones on shores and near water systems

Buffer zones create and preserve biodiversity. With regard to forest management, the principles for leaving buffer zones are recorded in the forestry operations model.

Lead department: VIHU, AKA, KITIA
Cooperation partners: YSU
Schedule: Starting in 2022

64. Renovating and restoring small urban water bodies systematically

Small urban water bodies include streams, ditches, springs and small ponds. With regard to streams in the urban area, VIHU is primarily responsible for the selection and protection of the restoration sites. In nature reserves and with regard to springs, YSU is responsible for the restoration sites. The level of implementation of the measure depends on the human and financial resources allocated to the lead departments.

Lead department: YSU, VIHU
Cooperation partners: VIHU, YSU, IOH, TEKSU
Schedule: during the programming period

65. Establishing the position of Water Protection Coordinator

The city needs a person to promote and organise voluntary water protection. The work includes, among other things, planning renovation measures for water systems and small water bodies and other water protection measures in cooperation with many parties, applying for permits, collecting information, taking care of communications, involving partners and providing environmental education.

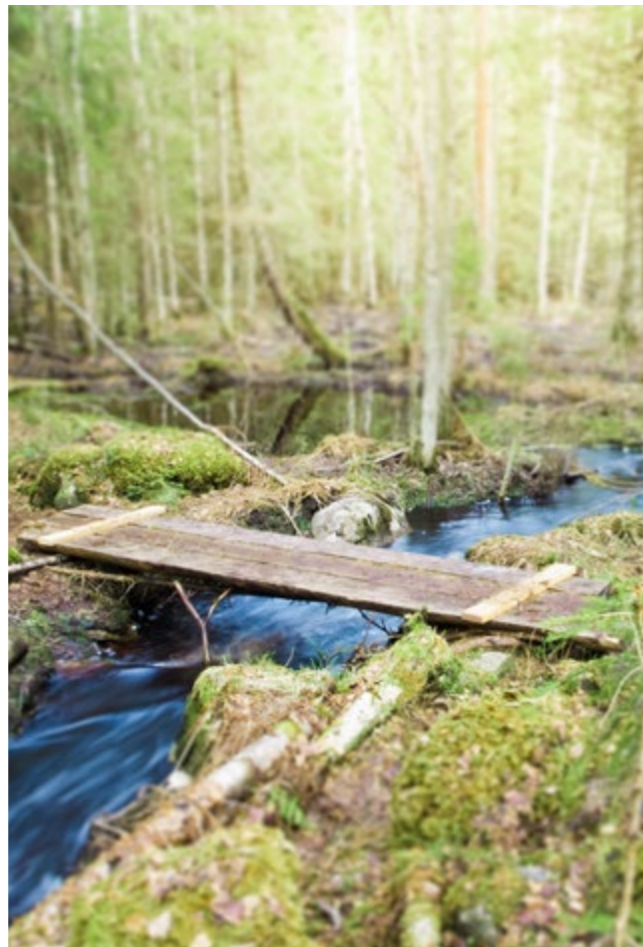
Lead department: VIHU (KITIA)
Cooperation partners: YSU, Ekok, YKA, AKA, Infra, PIRELY, organisations, residents
Schedule: Starting in 2022

66. Exploring opportunities for building structures to facilitate the passage of fish in Tammerkoski rapids

The dams in Tammerkoski rapids block the passage of fish. However, note should also be taken of the Tammerkoski dams' significant cultural-historical values, flood protection in the Kokemäenjoki water system and electricity production.

Lead department: not yet known
Cooperation partners: YSU, AKA, YKA, VIHU, Tampereen Sähkölaitos
Schedule: before 2025

Cost estimate for the priority: ●●●○○○
(See the reading instructions on page 27.)



GOAL 5:

The control of harmful invasive species is effective and functional

The fifth goal of the programme is the effective and functional control of harmful invasive species. Harmful invasive species threaten biodiversity and related ecosystem services by, for example, displacing native species, changing habitat conditions and disrupting food networks. In addition, some of them cause health hazards and production losses to agriculture and forestry, impair recreational opportunities and reduce the value of property. On a local level, the impact on local nature can be significant. Climate change is expected to further increase the number of harmful

invasive species and problems caused by them. The city has a legal obligation as a landowner to control harmful invasive species and prevent their spreading. The city also plays an important role in providing advice and communication on invasive species.

The key principles in invasive species control in Tampere are the long-term and organised nature of the work and the prevention of spreading in advance.

Priorities for action

- 5.1 We will strive to prevent the spread of invasive species in Tampere
- 5.2 We will fight against invasive species in an organised manner
- 5.3 We will strengthen the role of residents and communities in invasive species control
- 5.4 We will develop the collection and utilisation of invasive species data

5.1 We will strive to prevent the spread of invasive species in Tampere

67. Rapid action against the spread of new invasive species in Tampere

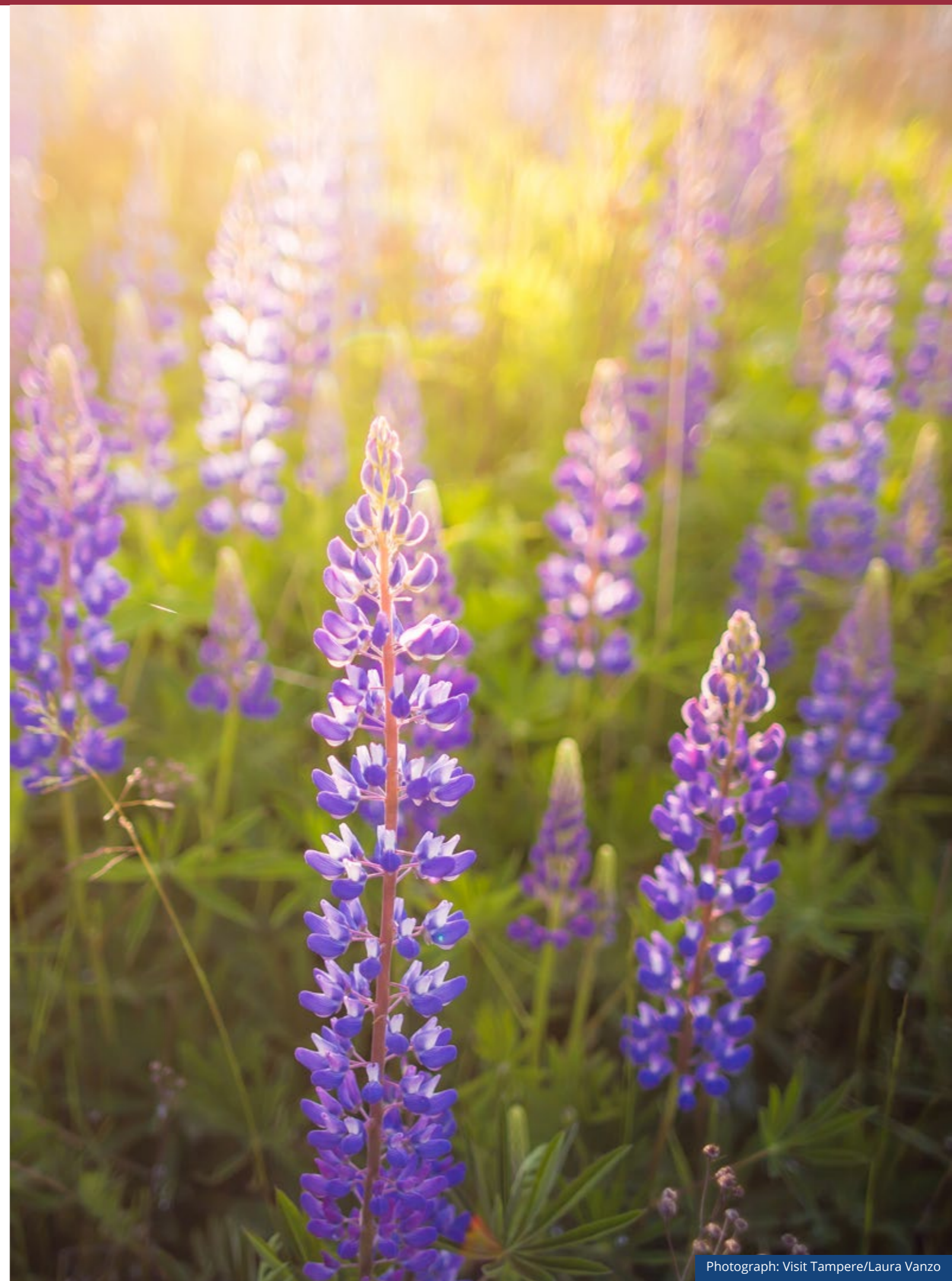
We will monitor the national invasive species portal and legislation. We will act quickly on new species spreading to Tampere, so that the populations do not grow and multiply.

Lead department: YSU
Cooperation partners: VIHU, IOH, Infra, ILY, Communications
Schedule: continuous work

68. Monitoring and preventing the spread of other rapidly increasing invasive species

Invasive species other than those on the list of harmful invasive species may also cause significant problems locally. Monitoring will be carried out alongside other work. The prevention of spreading will emphasise communication on the correct treatment of garden waste, for example.

Lead department: YSU
Cooperation partners: Infra, KITIA, Pirkanmaan Jätehuolto, TIPA
Schedule: continuous work



69. Taking invasive species into account in land use and in the transfer of soil

Invasive species will be taken into account in planning. At the planning stage of construction, invasive species will be identified at the origin of the soil and in the area to be built. Soil containing invasive species, parts of plants susceptible to spreading, roots or eggs will not be used or will be processed appropriately. The processing of soil containing invasive species will be monitored, and instructions will be provided on the correct way to dispose of soil containing invasive species. Work will be planned such that invasive species are not spread from one area to another with soil, transport vehicles, machinery, tools, stormwater or on footwear.

Lead department: AKA, IOH, Raksa, VIHU, TEKSU
Cooperation partners: YSU, Pirkanmaan Jätehuolto, Infra, TIPA
Schedule: continuous work

70. Not using plants classified as harmful invasive species and other rapidly spreading invasive plant species in city plantings

The choice of plant species can make a proactive contribution to preventing the spread of invasive species. Harmful or other rapidly spreading invasive species that have already been planted will be monitored and removed if necessary.

Lead department: VIHU, IOH
Cooperation partners: Infra, KITIA, AKA, TIPA
Schedule: continuous work

Cost estimate for the priority: ●●○○○
(See the reading instructions on page 27.)

5.2 We will fight against invasive species in an organised manner

71. Increasing the annual resources allocated to invasive species control compared to the 2021 level

Enhancing invasive species control requires additional resources compared to the current (2021) level. So far, the city has been focusing its systematic efforts mainly on giant hogweed control. With regard to other species, the efforts have mostly been based on occasional volunteering. Additional resources would allow, among other things, an efficient control team and systematic and organised invasive species control at the level required by the legislation.

Lead department: YSU
Cooperation partners:
Schedule: 2022–2025

72. Establishing a prioritisation plan for invasive species control and controlling invasive species accordingly

The plan defines which species the city will control. The plan also specifies where, by what means and by whom the control is to be carried out. The monitoring and follow-up of control measures will also be included in the plan. The prioritisation plan will be updated annually or as necessary. The prioritisation plan will be scaled according to the resources allocated to invasive species control. The prioritisation plan will also set time-bound, species-specific goals for the eradication of harmful invasive species.

Lead department: YSU
Cooperation partners: IOH, KITIA, Infra
Schedule: Starting in 2022

73. Testing and developing new methods for invasive species control

The development of invasive species control aims for effective and cost-efficient methods. Information received from cooperation networks about experiments will be utilised. The Environmental Protection Unit coordinates the control of invasive species. Infra Oy is responsible for testing and developing the methods.

Lead department: IOH, YSU
Cooperation partners: Infra, associations
Schedule: continuous work

74. Taking invasive species control into account in plans made to guide the management, maintenance and use of the areas

Management and use plans will be drawn up for nature reserves in particular. The management and use plans for nature reserves will be approved by the ELY Centre. In addition, management and use plans can be drawn up for green and recreational areas.

Lead department: YSU, VIHU
Cooperation partners: TIPA
Schedule: continuous work

75. Removing invasive species with woody stems during forest management measures

Invasive species with woody stems will be removed as part of forest management measures. Measures relating to forest management are guided by the city's Land Property Management. Coordinating the eradication of invasive species is the responsibility of the Environmental Protection Unit.

Lead department: YSU, KITIA
Cooperation partners: Infrastructure
Schedule: continuous work

76. Adding invasive species guidelines to the Tampere Urban Space Manual

The design of urban space in Tampere guided by the Urban Space Manual. The guidelines are followed by both the city's own designers and the consultants who carry out the design work as an outsourced service.

Lead department: YSU
Cooperation partners: Communications
Schedule: continuous work

77. Taking invasive species control and spread prevention obligations into account in land lease agreements

The need for clarification of the obligations for invasive species control between landowners and tenants has

been identified. The implementation of the measure will start by defining the principles and means by which the city's various land lease agreements take into account invasive species control and spread prevention.

Lead department: KITIA
Cooperation partners: YSU
Schedule: 2022–2023

78. Developing monitoring of aquatic invasive species and increasing surveys

Invasive species have mainly been monitored and surveyed on dry land. However, harmful invasive species also spread in aquatic habitats.

Lead department: YSU
Cooperation partners: VIHU
Schedule: continuous work

79. Developing the systematic hunting of harmful small predators classified at valuable natural sites

Small predators have previously been hunted at natural sites, but only occasionally. Increasing the effectiveness of hunting in nature management requires more systematic planning and the organisation of the hunting work. YSU is responsible for allocating the money used for invasive species control, while KITIA promotes the practical work.

Lead department: YSU
Cooperation partners: KITIA, VIHU, game management associations, other volunteers, educational institutions such as TAMK
Schedule: Starting in 2021

80. Establishing the position of Invasive Species Coordinator

The Invasive Species Coordinator will maintain cooperation with stakeholders such as neighbouring municipalities, other cities, the ELY Centre, residents, waste management, organisations and associations. The Invasive Species Coordinator will also be responsible for the development of invasive species control work and data collection methods. Centralised coordination and guidance of invasive species control is a prerequisite for genuinely effective control.

Lead department: YSU

Cooperation partners: VIHU, IOH, TEKSU, AKA, YKA, organisations, PIRELY

Schedule: Starting in 2022

81. Establishing an invasive species control team consisting of persons responsible for invasive species control at key units

Persons responsible for invasive species control will be appointed at key units to form an invasive species control team. The persons responsible for invasive species control, together with the Invasive Species Coordinator, will create and update the necessary guidelines for the unit on, for example, invasive species identification; survey; control (i.e. eradication); monitoring control work; waste management; preventing spreading with soil, machinery and equipment; monitoring the success of control; and utilising geographic data on the observation and control locations.

Lead department: YSU

Cooperation partners: KITIA, YKA, AKA, VIHU, IOH, Infra,

Construction, Sports Services, TIPA, LUMU

Schedule: Starting in 2022

82. Providing personnel with annual training on invasive species

Personnel will be trained as needed in subjects such as legislation on invasive species, national management plans, invasive species identification and control. Some training was organised in spring 2021.

Lead department: YSU

Cooperation partners: ILY, IOH, VIHU, KITIA, Infra, LUMU

Schedule: continuous work

Cost estimate for the priority: ●●●○○○

(See the reading instructions on page 27.)

5.3 We will strengthen the role of residents and communities in invasive species control

83. The city provides residents with advice on invasive species

Answering the questions of the city residents and providing advice on the right actions.

Lead department: YSU

Cooperation partners: Service point, Infra

Schedule: continuous work

84. Encouraging residents to control invasive species on their own property

Communication is used to encourage and advise residents on invasive species control.

Lead department: YSU

Cooperation partners: ILY, Communications

Schedule: continuous work

85. The city organises annual volunteer efforts to control invasive species

The city's annual volunteer efforts for lupine control will continue and the number of efforts organised will increase. Easy opportunities for invasive species control will be offered by, for example, marking suitable areas with signs.

Lead department: YSU, IOH

Cooperation partners: Communications, ILY, Infra, associations

Schedule: continuous work

86. Providing residents and associations with annual grants for invasive species control in public areas of the city

The city provides financial support for associations and residents to enable measures to control invasive species.

Lead department: YSU

Cooperation partners: KITIA, Infra

Schedule: annually

87. Developing external communications relating to invasive species

Communications will be used to increase city residents' general awareness of invasive species and the correct treatment of garden waste, and to activate residents to report their invasive species observations (through the vieraslajit.fi portal or the Tampere service point), participate in invasive species control and organise volunteer efforts. The communication channels include the city's website, social media and the distribution of bulletins in the areas.

Lead department: YSU

Cooperation partners: Communications, ILY, LUMU

Schedule: continuous work

88. Developing communications on aquatic invasive species and preventing their spread

Aquatic invasive species include species like crayfish plague, Canadian waterweed and the magnificent bryozoan. Aquatic invasive species may spread with boats, fishing gear and SUP boards, for example.

Lead department: YSU

Cooperation partners: Satamotoimisto, Ekok, Communications, ILY, PIRELY, KITIA

Schedule: Starting in 2021

Cost estimate for the priority: ●●○○○○

(See the reading instructions on page 27.)

5.4 We will develop the collection and utilisation of invasive species data

89. Maintaining databases on invasive species observations and control information

Up-to-date, regularly updated and widely utilised geographic data is a prerequisite for the systematic and effective control of invasive species. When the location of invasive species occurrences is known, the information can be used in planning, budgeting, control and monitoring, for example. The city maintains a geographic dataset relating to invasive species. The materials are visible in Oskari, Tampere's open map service, where residents can also see the materials. The city also reports invasive species data through the

national laji.fi observation portal. The invasive species data collected through the national laji.fi portal can also be displayed to other authorities, researchers, associations and the public. The maintenance of the geographic database is linked to measure 90.

Lead department: YSU, PT

Cooperation partners: Infrastructure

Schedule: continuous work

90. Developing the collection of invasive species data as part of forest management and maintenance of public areas

In order to control invasive species systematically, it is necessary to collect information on the location of invasive species and the control measures taken. Projects related to the collection of invasive species data are carried out by various branches of administration and Tampereen Infra Oy. Maintenance workers record their observations of invasive alien species in the invasive species database and update the database with information about invasive species control. The work is coordinated by the Environmental Protection Unit.

Lead department: KITIA, IOH, YSU

Cooperation partners: VIHU, Infra

Schedule: Starting in 2021

91. Taking invasive species into account in nature surveys to be commissioned, and recording these observations in the city's invasive species observation database

Investigation of invasive species will be included in the city's invitations to tender for vegetation and habitat type surveys, focusing on invasive species. Also taken into account in measure 111.

Lead department: AKA, YKA, VIHU, YSU

Cooperation partners: TEKSU

Schedule: continuous work

Cost estimate for the priority: ●○○○○○

(See the reading instructions on page 27.)

GOAL 6:

Residents and communities are aware of local nature values and want to work to support them

Residents are an important resource for safeguarding biodiversity in the urban environment. On the other hand, ignorance of the values of local nature and indifference increase the risk of deterioration and destruction of the values of the local environment (for example, disturbing endangered or protected species, littering, excessive environmental management, spread of invasive species). In a survey of Finns' relationship with nature in 2018, the respondents'

views on threats to Finnish nature differed clearly from those of environmental professionals.²³ In addition, in an environmental survey for Tampere residents in 2017, the majority of respondents regarded the city's communications about environmental issues as insufficient. Therefore, the sixth goal of the Biodiversity Programme is to ensure that city residents and communities are aware of local nature values and want to work to support them.

Priorities for action

- 6.1 We will develop environmental education and communication
- 6.2 We will promote volunteering
- 6.3 We will develop cooperation between the city and communities
- 6.4 We will promote an understanding of the importance of natural capital and its sustainable use

6.1 We will develop environmental education and communication

92. Systematically developing environmental communication towards a more diverse and multi-channel approach

An annual calendar for nature communication will be adopted. Indicators will be developed for the monitoring of communications. Websites relating to nature and nature conservation will be updated in connection with the city's website reform.

Lead department: YSU
Cooperation partners: ILY, VIHU, Infra
Schedule: Starting in 2021, continuous work

93. Improving the availability of nature and environmental information for decision-making and for residents

Up-to-date and clearly presented information on the state of the environment and nature is a prerequisite for informed decision-making. Based on feedback received from the Biodiversity Programme's resident surveys, environmental and nature data about the surrounding area is not available easily enough. The city is preparing to open an environmental information portal, open a hiking website and comprehensively reform the city website. The opening up of geographic datasets to the public will be continued.

Lead department: YSU
Cooperation partners: ILY, VIHU, KITIA, Ekok
Schedule: Starting in 2021



94. Encouraging city residents to engage in citizen science

Finland has a long tradition of citizen science and crowdsourced science. Thanks to crowdsourced science, Finnish bird census data, for example, is uniquely comprehensive on a global level. The observations of nature enthusiasts and citizens play an important role in collecting nature data and monitoring the state of nature. This measure will be promoted through targeted information campaigns, for example.

Lead department: YSU
Cooperation partners: LUMU, VIHU
Schedule: Starting in 2022

95. Developing and maintaining a cooperation network between the city and environmental educators in the city region

Cooperation between environmental educators will be promoted to develop the level of environmental education in Tampere.

Lead department: ILY
Cooperation partners: LUKO, LUMU
Schedule: Starting in 2021

96. Updating eco-support training materials to also take into account biodiversity

The City of Tampere already has more than 300 eco-supporters who promote everyday environmental actions at their workplaces. Training in eco-support activities will be complemented with material on biodiversity.

Lead department: ILY
Cooperation partners: LUMU, LUKO
Schedule: 2022

97. The city's youth activities will promote the consideration of biodiversity as part of youth work

In 2021, Youth Services implemented the Ekokipinä project together with the Häme district of the Finnish Nature League with funding from the Regional State Administrative Agency. Among other things, the project creates operating models for independent environmental activities and trains youth workers in environmental education. The activities will be further developed on the basis of the project.

Lead department: Youth services
Cooperation partners:
Schedule: Starting in 2021

98. Renovating nature trails and establishing new ones

The goal is to renovate or establish one nature trail per year.

Lead department: YSU
Cooperation partners: VIHU, KITIA, LUMU
Schedule: during the programming period

99. Improving communication at natural sites with information boards

According to feedback, traditional information boards on various sites are still a very desirable form of communication.

Lead department: YSU, VIHU
Cooperation partners: KITIA
Schedule: Starting in 2023

100. Organising guided tours at the city's natural sites

Nature excursions to natural sites in the city area are organised annually.

Lead department: YSU
Cooperation partners: VIHU
Schedule: continuous work throughout the programming period

Cost estimate for the priority: ●●○○○
(See the reading instructions on page 27.)

6.2 We will promote volunteering

101. Organising volunteer efforts for nature management

Volunteer efforts will engage Tampere residents in the management of their immediate surroundings.

Lead department: YSU
Cooperation partners: VIHU, KITIA, IOH, Infra
Schedule: during the programming period

102. Promoting and supporting the organisation of independent volunteer efforts for nature management

Annual financial support will be provided for the organisation of independent volunteer efforts for nature management. The number of grants awarded will be increased from the 2021 level. In addition to financial support, volunteer efforts on city-owned land will be made possible and support for organising volunteer efforts will be provided by, for example, selecting suitable sites, lending equipment, assisting with waste transport and providing general advice.

Lead department: YSU
Cooperation partners: KITIA, VIHU, Infra, Ekok
Schedule: continuous work

Cost estimate for the priority: ●●○○○
(See the reading instructions on page 27.)

6.3 We will develop cooperation between the city and communities

103. Developing cooperation between the city and companies to safeguard biodiversity

The method of implementing the measure will be specified during the programming period.

Lead department: ILY
Cooperation partners: YSU, VIHU, KITIA
Schedule: no schedule yet

104. Maintaining and developing cooperation with associations and organisations

Nature management projects will cooperate with associations and organisations. For example, cooperation can be used to target and increase invasive species control at important natural sites and to increase awareness of invasive species.

Lead department: YSU
Cooperation partners: associations and organisations, VIHU, Infra
Schedule: continuous work

105. Developing ways of involving residents in the promotion of biodiversity

As part of the Multisilta suburban programme, experiments will be carried out on how residents can be involved in the planning, construction and maintenance of nearby areas. As part of the programme, an operating model for biodiversity and residents' involvement will be developed on the basis of experiments. The model can also be used in connection with other projects.

Lead department: VIHU
Cooperation partners: YSU, Wild Zone
Schedule: 2021–2022

Cost estimate for the priority: ●○○○○
(See the reading instructions on page 27.)

6.4 We will promote an understanding of the importance of natural capital and its sustainable use

106. Exploring the possibility of promoting the health and well-being benefits of natural capital

The results of survey and research cooperation projects on the health and well-being benefits of biodiversity will be further refined in, for example, maintaining the immune system and mitigating the health effects of climate change, for use in planning, zoning and construction. To be implemented in the form of a thesis or pilot project, for example taking into account the effects promoting physical, mental and social well-being alike.

Lead department: ILY
Cooperation partners: KITIA, YSU, STRAKE, SIPA, YTE
Schedule: 2021–2025

107. Examining the economic values of natural capital and the possibilities of cherishing them

The values of natural capital can be related to, for example, adaptation to climate change, tourism, health and recreation. The information accumulated in surveys and research cooperation projects will be shared and processed to be utilised in the city's activities, development and decision-making. To be implemented in the form of a thesis or pilot project, for example, taking part in the organisation of training courses and commissioning further surveys to facilitate application.

Lead department: ILY

Cooperation partners: KITIA, YSU, STRAKE, SIPA, Finance Unit, YTE

Schedule: 2021–2025

Cost estimate for the priority: ●○○○○○
(See the reading instructions on page 27.)



NATURAL CAPITAL AND NATURE DATA MANAGEMENT TOOLS

Natural capital refers to all natural resources on which the production of ecosystem services is based, such as ecosystems, biodiversity and renewable and non-renewable natural resources. Ecosystem services mean the tangible and intangible services provided by natural capital. These include services such as food production, stormwater management and nature recreation. Identifying the city's natural capital and developing its management are prerequisites for informed decision-making and genuinely sustainable urban development.

In this context, nature data refers in particular to nature data electronically linked to a location (geographic data) and textual reports produced as part of nature surveys. Under this theme, we have collected technical measures relating to nature data and its management

as well as measures relating to the clarification of responsibilities between different organisational levels. By developing the management of nature data, its availability can be increased. In this context, the availability of nature data refers to the publicity and ease of use of different kinds of nature data produced in different forms within the city and between the city and other cooperation partners (for example, other authorities, expert organisations and consultants), as well as the general publicity of nature data produced by the city.

The development of tools for managing natural capital and nature data supports the implementation and monitoring of all the goals of the Biodiversity Programme.

Priorities for action

- Ecosystem accounting
- Biodiversity indicators
- Management of geographic datasets

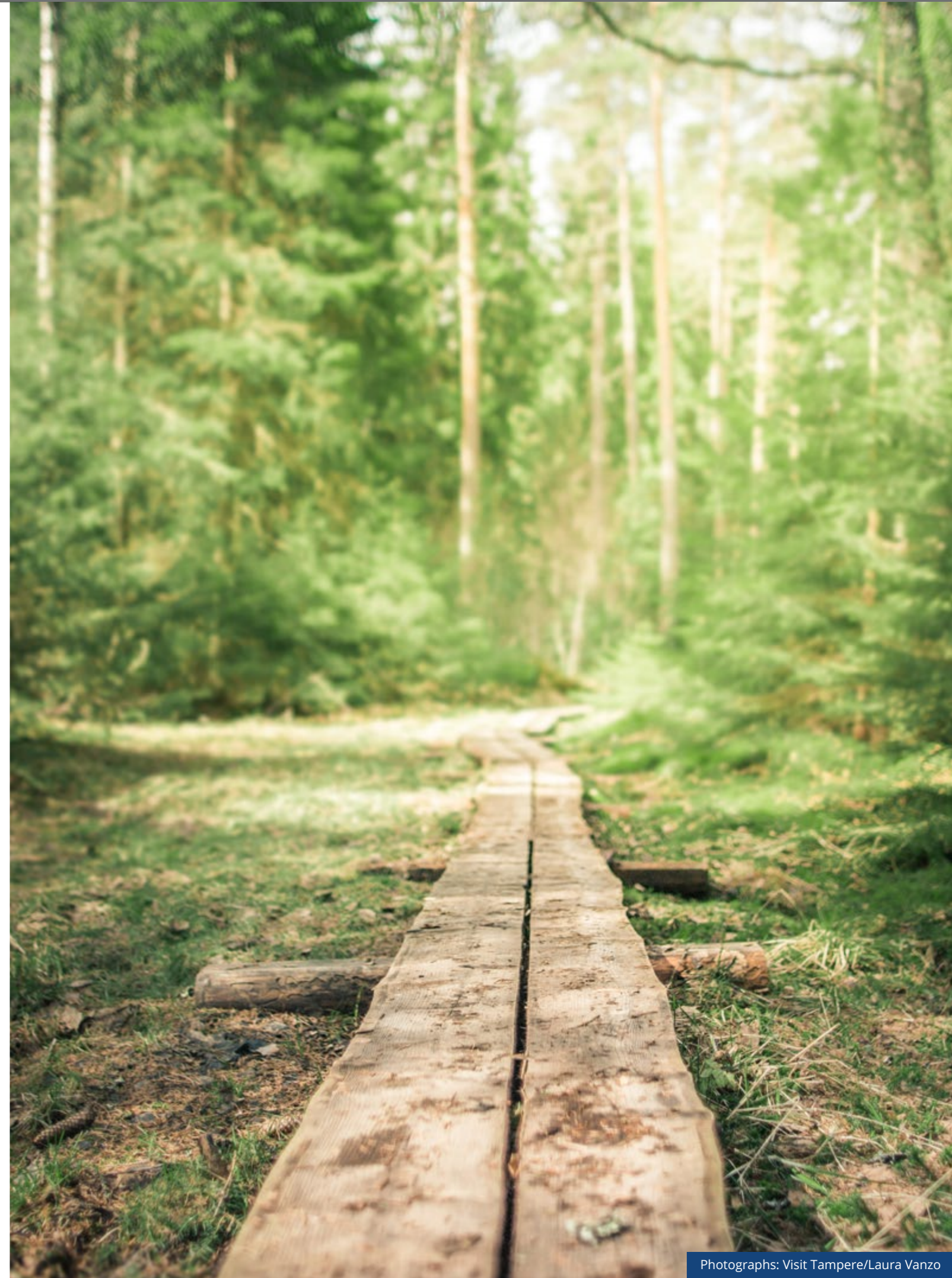
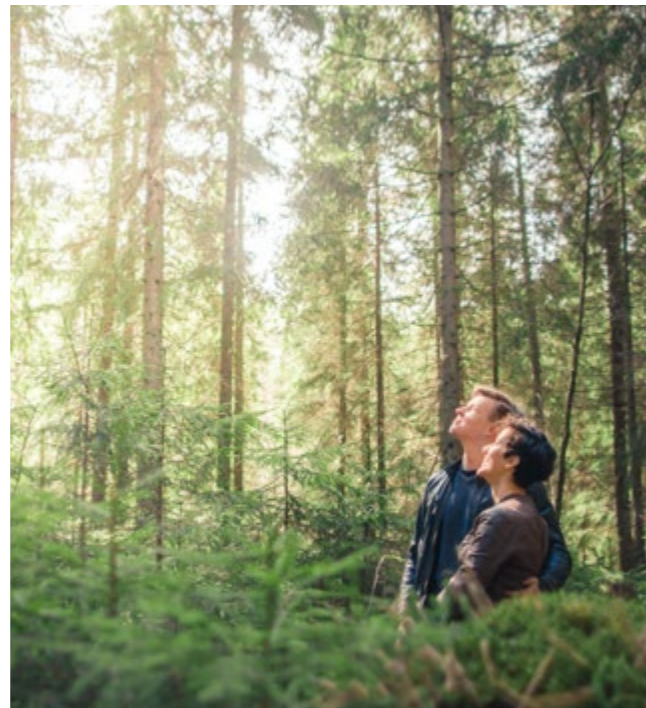
Ecosystem accounting

108. Developing ecosystem accounting as a tool for managing the city's natural capital

Ecosystem accounting extends the traditional accounting system by making visible the importance of ecosystems and their benefits for the economy and well-being. Started in 2021, the piloting of ecosystem accounting will continue in 2022 in cooperation with SYKE.

Lead department: ILY
Cooperation partners: YSU, VIHU, YKA, AKA, KITIA
Schedule: pilot started in 2021

Cost estimate for the priority: ●●○○○
(See the reading instructions on page 27.)



Biodiversity indicators

109. Developing biodiversity monitoring indicators

Financial monitoring can be based on euros and carbon dioxide equivalents in the context of carbon neutrality work, but there is no single quantity of biodiversity that could provide a clear and cost-effective account of the state of nature. Therefore, monitoring biodiversity requires several indicators that indirectly reflect the state of nature. These comparable monitoring indicators are being developed by, among others, the cooperation network of the six largest cities in Finland (the Six Cities). In addition to general indicators, there is a need for cost-effective indicators to monitor the state of local nature. The development of indicators is a prerequisite for monitoring the effectiveness of the programme.

Lead department: YSU
Cooperation partners: ILY, YKA, Six Cities, Finance Unit
Schedule: Starting in 2022

Cost estimate for the priority: ●○○○○○
(See the reading instructions on page 27.)

Management of geographic datasets

110. Developing information exchange between the Finnish Biodiversity Information Facility and the City of Tampere's observation data

Information exchange in both directions will be developed with the systems of the Finnish Biodiversity Information Facility. Up-to-date and comprehensive species information is a prerequisite for official work, research, proactive and high-quality land use planning and maintenance. The development of information exchange concerns endangered and rare species, invasive species and invasive species control data.

Lead department: YSU
Cooperation partners: PT, Infra, Finnish Biodiversity Information Facility, LUMU
Schedule: Starting in 2021, continuous work

111. Creating common guidelines for commissioning the city's nature surveys and storing them in geographic information systems

Each year, the city's various actors commission numerous nature surveys and nature-related monitoring projects. However, some information is missing about the content of orders and the further processing of surveys, which means, for example, that species monitoring data are still scattered outside the geographic information system. Uniform and clear guidelines will be created for ordering nature surveys and storing them in the city's systems. This will reduce the potential for duplicate surveys and prevent breaks in the flow of information.

Lead department: YSU
Cooperation partners: AKA, YKA, VIHU, IOH, KITIA
Schedule: Starting in 2022, updated annually

112. Further developing the management of geographic data relating to natural values

We will develop, among other things, the technical management of geographic data on natural values, the structures of databases and the presentation of the data collected. In particular, it is necessary to develop databases relating to habitat type data.

Lead department: YSU
Cooperation partners: Infra, AKA, YKA, VIHU
Schedule: Starting in 2021

Cost estimate for the priority: ●●○○○○
(See the reading instructions on page 27.)



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APPENDICES

Appendix 1: Preparation of the Programme

1.1 Preparing the goals

The first phase of the preparation of the Biodiversity Programme defined the programme's goals for 2030. The goals were prepared in accordance with the following principles:

- Achieving the goal is of genuine importance for biodiversity
- Achieving the goals is within the city's powers
- The goals support national and international biodiversity goals and the strategic policies of the City of Tampere
- The goals take into account specific local features
- The goals will stand the test of time

The goals of the programme implement the environmental policy objectives in accordance with the Tampere City Strategy 2030 and the Sustainable Tampere 2030 Guidelines. In addition, international and national biodiversity-related agreements and strategies were taken into account in the formulation of the goals, the most important of which are the UN Convention on Biological Diversity, the Global Biodiversity Strategy 2011–2020 and the new global biodiversity targets to be prepared from 2020 onwards, the UN Sustainable Development Goals, the European Union Biodiversity Strategy to 2030 and Finland's National Biodiversity Strategy 2012–2020.

In early 2020, the Environmental Protection Unit prepared a draft of the programme's goals. The draft of the goals was presented to the Urban Environment and Infrastructure Services management team in February 2020, after which the goals were worked on in cooperation with various city units.

In May 2020, an internal workshop of the city was organised, inviting representatives from the Urban Environment and Infrastructure Services units, the Growth, Innovation and Competitiveness Services units, Tampere Museum of Natural History and Tampereen Infra Oy. The workshop discussed the preliminary goals prepared by the Environmental Protection Unit in small groups. The workshop was attended by 18 participants. In addition, the invitees were given the chance to comment on the goals in writing after the workshop. On the basis of the workshop, the Environmental Protection Unit prepared an updated draft of the programme's goals, which the invitees were allowed to comment on for six weeks. The draft was edited on the basis of comments, after which it was taken to decision-making. The proposal for the goals of the programme was presented to the Urban Environment and Infrastructure Services management team on 5 August 2020 and to the Committee for City Planning and Infrastructure Services on 11 August 2020. The City Board approved the goals on 24 August 2020.

1.2 Preparing the measures

The second phase of the preparation of the Biodiversity Programme defined the programme's measures, i.e. the practical means to reach the goals. The main responsibility for the preparation lay with the Environmental Protection Unit. In addition, a project team was formed from the participants of the programme's goal workshop to guide and promote the preparation of the measures. The project team met seven times between autumn 2020 and spring 2022.

Residents, associations and city employees were involved in the preparation of the measures. The views of residents and expert associations on Tampere's nature and on the possible measures of the Biodiversity Programme were surveyed in autumn 2020. Proposals for measures were also collected from city employees. Reports on the results of the surveys are available on the programme website at www.tampere.fi/tampereenlumo.

The measures of the programme were worked on in the city's internal workshops, a total of 19 of which were organised. The workshops examined the current practices of the city's various units in taking biodiversity into account, and developed ideas for new practices. The themes of the workshops were comprehensive and detailed planning; development and construction; building control; planning and maintenance of municipal engineering, transport systems and green areas; green areas and stormwater; lighting planning; forest management; water systems; invasive species; sports and youth services; environmental education and communication; and climate and environmental policy. The workshops utilised the results of resident, association and employee surveys organised

in autumn 2020.

In addition to the survey results and a large group of experts, the preparation of the measures utilised, for example, biodiversity agreements and strategies, scientific publications and a draft of the national pollinator strategy. In addition, similar programmes completed by other cities and municipalities were utilised. As background material for the preparatory work, Demos Helsinki produced a report on the links between biodiversity and the economy and human health.

In the preparation of the measures, the focus was on the direct impact of the city's activities on biodiversity, and the other policies and operating models of the City of Tampere were used in the preparation. In addition to the creation of new operating methods, efforts were made to complement existing policies and operating models and to increase the visibility of the work that has been done for biodiversity by the city's various bodies. Schedules, lead departments and cooperation partners were defined for the measures. The programme's measures, schedules, lead departments and cooperation partners will be updated if needed. The need to update the measures will be reviewed at least once during the programming period, at the latest in the middle of the period. The draft programme was published for comments on 13 September 2021. After the display period, changes were made to the structure of the programme. The programme's measures were structured under the goals on which they have the greatest impact. To facilitate the perception of the whole, the measures were also grouped under the priorities for action. The change in structure was made to make the programme package easier to read and understand. The City Board confirmed the change in the structure of the programme at its meeting on 14 March 2022.

Cost estimates of the measures

The costs of the measures were roughly estimated for decision-making purposes. The estimation was mainly carried out by experts, and the estimates were based on the actual costs of similar previous work. The estimates took into account the identifiable direct costs of the measures. The estimates did not take into account the indirect costs or the indirect or direct benefits of the measures. Direct economic benefits include, among other things, possible state compensation for the establishment of nature reserves (METSO programme) and savings in maintenance, and indirect benefits include savings from the health benefits of diverse nature. Work carried out by city officials as part of their job description is not included in the estimates. For measures requiring the recruitment of new workforce, the costs were estimated on the basis of the average salary of employees of Urban Environment and Infrastructure Services (excluding directors and managers).

In particular, it should be noted that the cost estimates do not directly indicate the need for additional resources. For example, it is possible to apply for state aid for some of the costs, or they can be financed in part or in full through other programme work. Separate projects, such as the costs of surface water restoration, are always decided separately, for example as part of the unit's annual and service plans.

Citizen's and council initiatives

During the preparation of the programme, several initiatives were made to the City of Tampere relating to securing biodiversity. Council and citizen's initiatives were made to establish meadows and safeguard the conditions of pollinators, safeguard and strengthen natural values in forest management, develop the structures and accessibility of recreational areas, create new nature reserves and speed up solutions aimed at halting biodiversity loss. Some measures in line with the goals of the initiatives are included in the Biodiversity Programme, the forestry operations model 2030 and other documents guiding Tampere's operations.

Feedback on the draft programme

The draft of the Biodiversity Programme was published on the programme website on 13 September 2021, and it was possible to comment on it for three weeks from 13 September to 3 October 2021. A total of 13 comments were received: two from public authorities, four from associations and seven from private individuals. The feedback was taken into account in the further preparation of the programme. A report on the feedback received, its processing and the responses given is available on the Biodiversity Programme website (www.tampere.fi/tampereenlumo).

1.3 Creators of the Biodiversity Programme

Environmental Protection Unit

The preparation of the programme was coordinated by Anni Nousiainen, Environmental Planner

In addition, the programme was prepared by:

Harri Willberg, Environmental Protection Manager

Elina Karimaa, Project Planner

Enni Virtanen, Eeva Punju, Katri Laihosalo, Jenna Pihlajamäki, Teija Ahonen and Hannu Niukkanen, environmental planners

Jaana Lappeteläinen, Environmental Inspector

Project team members

Environmental Protection: Harri Willberg, Anni Nousiainen, Katri Laihosalo, Elina Karimaa, Enni Virtanen
Sustainable City: Kari Kankaala

Climate and Environmental Policy: Laura Inha, Eeva Palmolahti, Kaisa Mustajärvi
 Strategy and Development: Sanna Mari Huikuri
 Detailed Planning: Antonia Sucksdorff-Selkämä, Saija Kouko, Elina Karppinen
 Green Spaces and Stormwater: Timo Koski, Pekka Heinonen
 Comprehensive Planning: Mirkka Katajamäki, Taru Heikkinen, Pia Hastio
 Real Estate and Housing: Anne Tuominen, Jani Aho
 Tampere Museum of Natural History: Tomi Kumpulainen, Riikka Elo
 Infrastructure Asset Management: Kimmo Myllynen, Kirsi Mäntysaari-Ukkola
 Tampereen Infra Oy: Heli Vuorilampi, Teemu Kylmäkoski, Pentti Katajisto, Joonas Huhtanen
 Sports Services: Mikko Heinonen, Anna Henttonen
 Municipal Engineering Planning: Jouni Sivenius
 Construction: Petri Kantola

In addition to the above, several experts from various service areas of the city and group administration have participated in the workshops and planning meetings of the Biodiversity Programme.

Appendix 2: Biodiversity as part of the City of Tampere's operations

Although this Biodiversity Programme is the first of its kind, the consideration of biodiversity has also been part of the City of Tampere's operations earlier. Below are the key parties of the city, as well as the issues managed by the city, which have had and will continue to have a significant impact on how the consideration of biodiversity is promoted in the city's operations.

2.1 Environmental protection authority and Environmental Protection Unit

The municipal environmental protection authority acts as the guardian of the public interest in environmental protection on the local level. It has also been entrusted with a number of tasks under specific legislation, which require attention to the preservation of the environment and biodiversity. In addition, the municipal environmental protection authority can, for example, issue statements on various projects. Attention is paid to natural values in the permit and monitoring processes of the environmental protection authority in accordance with, for example, the Environmental Protection Act, Land Extraction Act, Waste Act, Water Services Act, Water Act, Maritime Environmental Protection Act, Off-Road Traffic Act and Water Traffic Act. In Tampere, the environmental protection authority is the Environment and Building Division of the Committee for City Planning and Infrastructure Services, whose tasks have been delegated to the officials of the Environmental Protection Unit. The administrative regulations of the City of Tampere stipulate that tasks relating to nature conservation are the responsibility of the Environment and Building Division.

In addition to preparing authority decisions, the Environmental Protection Unit also plays an important role in promoting the consideration of biodiversity in the city's operations. The Environmental Protection Unit's experts participate in, for example, the steering of comprehensive and detailed plans, provide statements in the permit processes related to construction and landscape work permits as necessary, and offer advice to both city employees and residents on issues relating to nature and the consideration of nature. In addition, the Environmental Protection Unit takes care of the preparation and implementation of the management and use plans of city-owned nature reserves, the city's nature monitoring, the management of geographic nature data, nature-related communications and the planning of nature trails.

2.2 Environmental Health Unit and health protection authority

The Environmental Health Unit monitors the healthiness of food and domestic water and the health conditions of buildings and investigates suspected health hazards. Veterinary services and animal welfare are also part of environmental health. The Health Protection Act requires that all activities affecting the living environment must be planned and organised in such a way that the health of the population and the individual is maintained and promoted. For its part, the Environmental Health Unit supports the comprehensive consideration of health-related aspects in all planning and decision-making. In practice, this is done, for example, through the health protection authority's statements in connection with environmental permits and zoning projects.

In the statements, the health protection authority pays attention to, among other things, the prevention of health hazards or the need to limit such hazards. Such issues may include the consideration of parks and green areas as buffer zones for environmental exposure, such as air pollution on pedestrian and cycle routes and in residential areas, or as a noise protection zone. Attention is also paid to the functioning of the natural environment in reducing the harmful effects of heat and radiation. This is also in line with the goals of biodiversity in the living environment; a diverse natural environment can be seen to have multidimensional health effects.

2.3 Building Control

The activities of the city's Building Control Department are governed by the Land Use and Building Act. Building Control monitors compliance with the detailed plan regulations and acts as an authority with regard to building

permits. Building Control is responsible for drawing up and updating the building code of the city. The Building Code of the City of Tampere contains regulations concerning land use and construction due to local conditions. They aim of promoting ecologically, economically, socially and culturally sustainable development, systematic and suitable construction as well as the implementation of a healthy, comfortable and socially functional living and working environment that takes into account special-needs groups. The building code includes nature conservation and environmental protection regulations concerning, among other things, the protection of groundwater and surface waters, treatment of contaminated soil, trees on properties and their permitted felling dates. In addition to building permits, the Building Control Department issues landscape work permits in accordance with the Land Use and Building Act.

2.4 Zoning and land use planning

In Tampere, zoning has been divided into the Comprehensive Planning and Detailed Planning units. The comprehensive plan further specifies the regional land use plan and indicates the main principles of land use at the level of the entire city. The comprehensive plan defines, for example, the purposes of the areas, the goals of the transport system and strategic development issues of the urban structure. The comprehensive plan guides city planning and construction in, for example, village or shore areas. The preparation of the comprehensive plan is governed by the Land Use and Building Act and the Tampere City Strategy. The comprehensive plans drawn up in the Tampere city centre area include the strategic comprehensive plan for the city centre and the inner-city comprehensive plan updated each council term, and a strategic comprehensive plan is also being prepared for the whole of Northern Tampere. Various extensive nature and landscape surveys have been carried out for the preparation of the comprehensive plans, in order to assess the impact of the city's development on nature and biodiversity. The comprehensive plans include things like nature reserves, sites important for biodiversity and provisions to protect biodiversity, for example, in connection with wildlife corridor needs. The comprehensive plan also includes regulations and goals for water systems, small water bodies, urban ditches and groundwater areas.

In accordance with the Land Use and Building Act, a detailed plan evaluates the effects of city plans on biodiversity. For the purpose of the impact assessment, the detailed plans survey the key natural values of the area in question. The survey needs vary for each detailed plan, and the surveys to be carried out for the detailed plans are defined in the detailed plan's participation and assessment plan. If necessary, the surveys can be further specified and supplemented at later stages. In connection with the detailed plans, surveys and plans relating to stormwater management are also made, if necessary, which in turn promote water protection. The detailed plans can specify detailed regulations concerning the goals of the management of the areas and the reduction of the adverse environmental and natural effects of construction. The City of Tampere has dozens of different regulations in place to control the safeguarding of natural values in city planning areas. Examples include regulations on habitats and corridors for the flying squirrel and regulations on springs and natural streams or semi-natural ditches. In 2020, the green factor tool was introduced in city planning to guide, for example, stormwater management and courtyard planning.

The broad scope of land use planning also includes the planning of transport systems, whose priorities are guided by the City Strategy and comprehensive plan. The urban nature is also influenced in many ways by the guidelines made for roads, streets and the network of pedestrian and cycle routes along with their quality level goals. However, priority will be given to avoiding or mitigating impacts on species, valuable habitat types and biodiversity. Planning that takes biodiversity into account can also improve already weakened wildlife corridors. With regard to transport system planning, the coordination of plans and natural values is currently carried out in the context of master plan work in particular.

2.5 Planning and maintenance of public areas

Planning of green areas

In city planning areas, the construction and maintenance of parks and green areas are based on general and construction planning. Like other city activities, the planning of green areas is also paying increasing attention to natural environments. Special attention has been paid to, for example, the management and development of open green areas by drawing up a green service programme for the inner city's open environments, which outlines the principles of their management.

The city's stormwater management is primarily aimed at nature-based stormwater management systems. Nature-based solutions in stormwater management mean the imitation and utilisation of natural processes. These include various biofilters, vegetation-covered stormwater hollows, green roofs and built wetlands. Nature-based stormwater solutions improve the comfort of areas, the quality of water systems, biodiversity and the city's adaptation to extreme weather phenomena caused by climate change. The largest comprehensive nature-based stormwater system in Tampere is in the residential area of Vuores.

For green areas that are or will be covered by detailed plans, the Green Spaces and Stormwater Unit is responsible

for preparing the plans and the various green service programmes, the stormwater programme and the planning of stormwater management as well as the management of urban ditches.

Planning of traffic areas

Street plans, which indicate, for example, the locations of urban trees, vegetation choices in intermediate lanes and stormwater solutions, are made by the city's Municipal Engineering Planning Unit. Detailed cycle and pedestrian route plans as well as lighting plans are also included in municipal engineering planning.

Maintenance of public areas

The maintenance of public areas, such as green areas and street areas, is of great importance in, for example, invasive species control and the promotion of biodiversity in open areas and local nature. Public green areas owned by the city have long been managed in accordance with the management classification of green areas, green service programmes, management and use plans for special sites as well as the goals and quality requirements for regional production. The Maintenance Unit puts these plans into practice by carrying out the actual work. Maintenance also participates in the development of invasive species control measures and pilots various maintenance activities promoting biodiversity in cooperation with various units of the City of Tampere.

The maintenance of public green areas and street areas is the responsibility of Tampereen Infra Oy based on a comprehensive service agreement with Urban Environment and Infrastructure Services. The agreement defines the content, scope and price of the services to be ordered. The maintenance service agreement is also an important tool for guidance and cooperation. Maintenance of public areas is ordered and supervised by the Infrastructure Asset Management Unit.

Forest management

The city's history of systematic forest management dates back to 1887, after which forest plans have been drawn up and updated at fairly regular intervals with the exception of the war years. Over the past 90 years, the forest assets of the City of Tampere have increased while the proportion of forests in economic use has decreased. Determining natural values and taking them into account were made a key priority of forest management in the forest plan drawn up for 2001–2010. Biodiversity and the functioning of ecological networks were also one of the priorities of the City of Tampere's forestry operations model for 2009–2020. The operating model is a strategic-level approach that guides the preparation of the city's forest plans, the implementation of management measures and the organisation of participation. During the update round of the operating model, the consideration of natural values has become even more central than before. Perseverance and nature management work have also yielded results from the point of view of natural values. The average age of city-owned forests is well above the regional average, and there are widespread occurrences of endangered and threatened species that depend on dead wood, for example. More information on the history of the city's forest management was collected in the forestry operations model for 2009–2020. The management of the city's forest assets is the responsibility of Land Property Management.

2.6 Construction

The construction of municipal engineering on the basis of plans made, such as the implementation of plans for streets, lighting and water supply as well as the construction of green areas and parks, is guided by the city's Construction Unit. Developers are responsible for guiding construction sites and for ensuring, for example, that the prevention of the spread of invasive species is considered in the construction site's plans and that the natural values to be protected are also taken into account in the daily work of the construction site. In recent years, efforts have been made to further improve the consideration of the environment, biodiversity and carbon neutrality goals, also for construction sites, by developing a comprehensive site environmental plan template for infrastructure contractors.

2.7 Environmental education and communications in the City of Tampere

City communications

Matters relating to nature and the environment are communicated in particular through the city's own communication channels, the Tampere newsletter and the Tampere.fi website as well as on social media on Instagram, Facebook and Twitter. Content is also produced on the city website in the form of separate bulletins and articles. In addition, sustainable development work and nature matters are communicated on Facebook in the Kestävä Tampere (Sustainable Tampere) group, which is maintained by the Climate and Environmental Policy Unit.

Tampere Museum of Natural History

Established in the 1960s, Tampere Museum of Natural History has been located at Museum Centre Vapriikki since 2010. The permanent exhibition of the Museum of Natural History introduces visitors to nature and biodiversity in the Tampere region, and various temporary exhibitions highlight current nature and environmental topics. In addition to exhibition activities, the museum organises diverse environmental education, organises nature-related events, conducts natural science research, maintains natural science collections, answers nature questions and

identifies samples brought by the public. The museum also includes the Tammerkoski nature trail. The Museum of Natural History is a designated regional museum of the Tampere region (since the beginning of 2020). The funding of the museum is part of the funding of the historical museums in Tampere. In addition, designated regional museums receive funding through the Ministry of Education and Culture. The basic activities of the museum have not been included in the programme.

Nature School Korento

Established in 2002, Nature School Korento operates in the village of Terälahti in Teisko. Korento offers free nature school days for children and young people in Tampere. The groups prioritised in the nature school's activities are 5–7-year-olds and 4th- and 7th-graders. The nature school also organises environmental summer courses and summer camps as well as training days.

Nature School Korento has been supporting environmental education and outdoor learning pedagogy in early childhood education and basic education in Tampere for 20 years. The nature school offers a wide range of services that encourage educators and teachers to carry out cross-curricular school days. At the same time, children and young people gain different experiences with learning methods that help them to adopt information from their immediate surroundings. All of this is also used as a basis for curricula for early childhood and basic education. The annual number of visitors to the nature school is about 5,000, about 2,500 of whom are schoolchildren and teachers, and about 2,000 children and educators in early childhood and pre-primary education. The rest of the customers visit the nature school during, for example, educators' and teachers' training, possible open days, various events and summer camps.

Nature School Korento is involved in extensive cooperation locally, regionally and nationally. The Green Flag environmental education programme carried out with the Terälahti school building creates a sense of community for the residents of Terälahti. The drafting, updating and implementation of the societal commitment to sustainable development will bring outdoor learning pedagogy more strongly into the everyday life in early childhood education and basic education in Tampere. An important actor in regional cooperation is the Tampere region environmental education cooperation group PYY and its working committee Pyrstö. At the national level, the nature school is actively involved in the activities and board of the Finnish Association of Nature and Environment Schools and the LYKE network. Nature School Korento is the association's audited development centre. The basic activities of the nature school have not been included in the Biodiversity Programme.

Nature trails and information signs

Several nature trails are maintained in Tampere, most of which are located in nature reserves. Most of the city's nature trails date from the early 2000s, when seven were established. However, the maintenance of the trails and signs has been insufficient, and it is now impossible to follow the trails in some places. Systematic restoration of nature trails has been started, and one of the trails, the Niihama nature trail, has been renovated. The renovation of the Tohloppi nature trail has been started and will be completed in 2022. Completely new nature trails have been established in Koukkujärvi in Vuores and by Tammerkoski rapids. The Environmental Protection Unit is mainly responsible for the content planning of the nature trails, and Land Property Management is responsible for their construction and maintenance. An exception to this is the Tammerkoski nature trail, which is maintained by the Green Spaces and Stormwater Unit and the contents of which are the responsibility of the Museum of Natural History. In addition to nature trails, there may be individual information boards in green areas providing information about the specific natural values or management of the area. The paths and individual information signs located in green areas are mainly the responsibility of the Green Spaces and Stormwater Unit. The nature trails and information signs describe the characteristics of Tampere's nature, the conservation values of conservation areas and the restoration work carried out for biodiversity in the vicinity of the sites.

Recreation and hiking guidance

Thanks to the everyman's rights, everybody has the right to nature recreation and hiking in the city's forests and green areas. On some sites, the adverse effects of recreational use on natural values have been prevented by, for example, covering paths, building duckboards and using signs. In nature reserves in particular, it is often necessary to control the use and prevent problems, such as footfall erosion. Nature reserves are often equipped with information boards that provide information about the area's nature and guide users to take into account the natural values and protection regulations. The boundaries of nature reserves are also marked on the terrain in the inner-city area, so that visitors are informed about the protection of the areas when moving around them. The signs, routes and boundary marks of nature reserves are the responsibility of the Environmental Protection Unit together with the Real Estate Department and the Pirkanmaa Centre for Economic Development, Transport and the Environment. Hiking services and their development are the responsibility of Land Property Management.

2.8 Invasive species control

With regard to invasive species control, the main focus of the city's activities in recent years has been the systematic control of occurrences of species that are hazardous to humans, such as giant hogweed. In other respects, the

control work has been more sporadic and has been based on volunteering, for example. The City of Tampere enables voluntary cooperation between residents, associations and organisations and volunteer efforts by, for example, providing advice on invasive species control and suitable areas, managing the transport of invasive species waste from the areas under its control and recording information about invasive species in open databases.

In recent years, a more organised and systematic approach to invasive species control has been sought. This has also been influenced by the update of invasive species legislation. In addition to control work, significantly more attention has been paid to the prevention of spreading between construction sites, for example, and investments have been made in active guidance.

In order to develop invasive species control, the city's Environmental Protection Unit, together with the invasive species control team, started preparing an invasive species policy for the city. As the preparation of the Biodiversity Programme progressed, the invasive species policy was merged into the programme and its measures. A separate invasive species policy is no longer being prepared.



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